



## *Some right in, we's glad to see you!*

The famed reputation of Southern hospitality now includes industry. The welcome mat is out for manufacturers who recognize the advantages of locating in the industrial areas of America's Southland. The great regions of the South, which for too long served chiefly as a treasure store of raw materials for plants in other areas, now plan to roll their own.

Lake Charles, Louisiana, for example, was a town of 10,000 in 1920, with a fund of mineral resources, relatively little commercial activity, and an urge to attract manufacturers. Its people had a vision of a bustling, industrial Lake Charles, and they proceeded to make that dream come true. They prepared for their invited guests a deep

water channel to the Gulf, some 30 miles away. The results . . . Lake Charles' population has tripled. It now has 45 industrial plants, including our own Cities Service 76 million dollar refinery and the adjacent 17 million dollar plant making raw materials for synthetic rubber.

From experience we can say, "There's nothing like a real Southern welcome." And the word is spreading! Already sections of Louisiana and Arkansas are alight with the flames of blast furnaces. Power lines stretch over the blue hills of Tennessee and factory smokestacks are rising in Missouri and Alabama. A new day is dawning for the South, a day that means new jobs for more Americans and new horizons for a nation at peace.

Cities Service Company



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ORANGE STATE OIL CO.

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# MANUFACTURERS RECORD

ESTABLISHED 1882

A Publication for Executives

Volume 116 JANUARY, 1947 Number 1

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H. B. French - - - - - Advertising Manager  
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Main Office: 109 Market Place, Baltimore 3, Md.  
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Lawrence Sullivan, Washington Correspondent  
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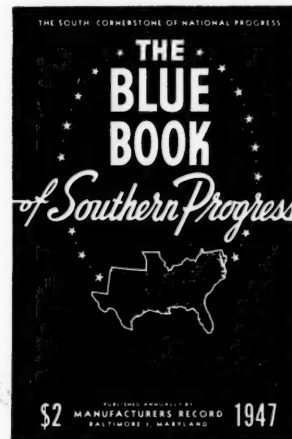
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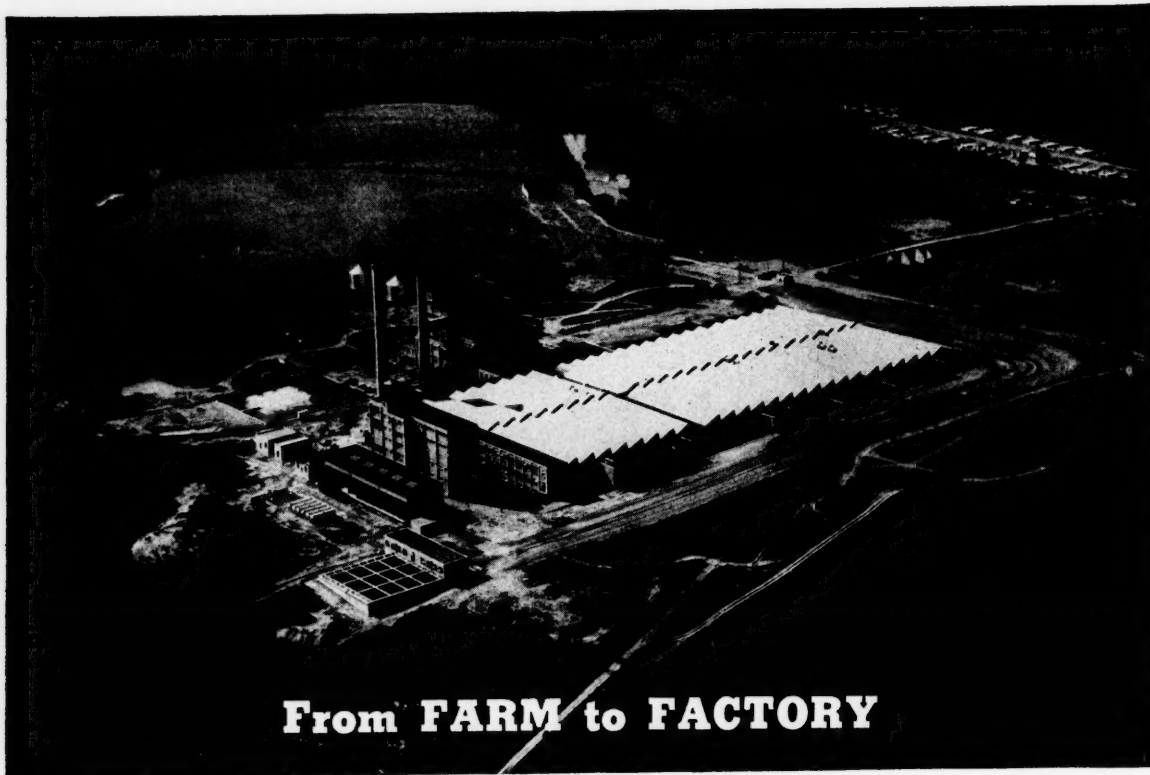
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BALTIMORE 3, MD.

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Scene changes like this are becoming more and more common in the South as important industries continue to locate plants where so many natural resources and economic advantages abound. And **DIVERSITY** is the order of this postwar trend. This significant fact is graphically revealed by our production schedules which show we are simultaneously furnishing the structural steel for more than 40

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# NEW AND EXPANDING PLANTS

COMPILED FROM REPORTS PUBLISHED IN THE DAILY CONSTRUCTION BULLETIN

## ALABAMA

**ANNISTON** — Garage — Anniston Lincoln Mercury Co. let contract to Atlas Construction Co. for masonry garage building, 100 x 150 ft.

**BIRMINGHAM** — Shed & Service Station — J. F. Holley, has contract at \$49,904 for shed and service station, masonry, galvanized iron and steel construction, concrete floors; City Ice Delivery Co. owners.

**BIRMINGHAM** — Warehouse — R. D. Burnett Cigar Co., let contract to J. H. West for warehouse building for cigars, cost \$60,000.

**BIRMINGHAM** — Garage — Liberty Motors Inc., 2501 6th Ave., S., received bids for garage building, cost \$75,000.

**BIRMINGHAM** — Plant — Virginia Bridge Co., Harold W. Morgan, Mgr., furnishing steel, sheet metal work, etc., for proposed plant to be located on a 40-acre tract fronting on 39th Street, adjacent to present plant location; will include a main shop building, office building and a separate paint house; shop building to be of structural steel covered with sheet metal and the other two buildings of masonry; estimated cost \$1,000,000; Virginia Bridge Co., a subsidiary of the U. S. Steel Corp.

**MOBILE** — Warehouse — Kraft Food Co., Chicago, Ill., let contract to Del E. Webb Construction Co., Chicago, Ill., for construction of warehouse, cost \$200,000.

**MONTGOMERY** — Plant — Flynn E. Hudson, Jr., Bell Building, has plans in progress for construction of an industrial building; 102x432; brick, concrete and steel construction; owners name withheld.

**MONTGOMERY** — Plant — State Market Board, W. J. Hackett, Director, plans construction of an egg and poultry processing plant, cost \$60,000.

**SYLCAUGA** — Gas Distribution System — B. M. Construction Co., Oklahoma City, Okla., has contract at \$578,570 for natural gas distribution system.

**TALLADEGA** — Warehouse — Bemis Brothers Bag Co., let contract to Fiske-Carter Construction Co., Greenville, S. C., at \$120,000, for construction of a cotton warehouse.

## ARKANSAS

**LITTLE ROCK** — Plant — Westinghouse Electric Corp., Ralph S. Stuart, Vice President, has acquired 27-acres of land for construction of an incandescent lamp manufacturing plant; excavation to start in about three months; L-shape, will have an administration wing facing Roosevelt Road with rest of the structure devoted to manufacturing, storage of raw materials and finished lamps, shipping and receiving; expansion of its lamp manufacturing facilities in Little Rock is part of a \$132,000,000 production expansion program.

**WARREN** — Plant — Warren Cotton Oil & Manufacturing Co., E. L. Wise, President-Manager, has plans drawn for new ice plant; order for refrigerating equipment has been placed with H. B. Phelps.

## FLORIDA

**CANTONMENT** — Pulp Mill — Florida Pulp & Paper Co., P. O. Box 1591, Pensacola, let contract to Merritt, Chapman & Scott, New York, for construction of pulp and paper plant, approximately 8 miles from Atmore, Ala.; estimated cost \$12,000,000; will manufacture all purpose Kraft paper.

**DAYTONA BEACH** — Machines — Volusia Vending Co., Incorporated with C. D. Purser and Associates; vending machines.

**FERNANDINA** — Elevator — Container Corporation of America let contract to General Elevator Co., 399 Bishop St., NW Atlanta, Ga. for electric freight elevator.

**HIALEAH** — Plant — Dominick Spinella, c/o Miller & Podell, 245 9th Street, Miami Beach, plans manufacturing plant, 1192 E. 24th Street, cost \$9,000.

**HIALEAH** — Building — Acme Concrete Products Co., 5705 NW 27th Ave., Miami, let contract to Edward J. Gerrits, 262 NE 37th Street, Miami, for construction of one-story storage building and one-story office building, 5700 NW 37th Avenue.

**JACKSONVILLE** — Building — E. A. Strauss let contract to S. S. Jacobs Co., for construction of new building, corner of South Main and Alvarez Streets on the Southside; will be leased to American Seating Co.

**JACKSONVILLE** — Expansion — Jacksonville Brewing Co. plans garage, remodeling of plant and replacement of fermenting cellars and tanks, cost \$150,000.

**JACKSONVILLE** — Plant — Ivy H. Smith Construction Co. will erect manufacturing plant to produce prefabricated houses, cost \$125,000.

**MIAMI** — Insulation — Western Meat & Sausage Co., 2122 NW 7th Ave., let contract to Florida Hill York Corp., 1225 SW 8th Street, for cold storage insulation in existing building, cost \$10,000.

**MIAMI** — Warehouse — Peninsular Supply Co., C. Kyle, 2247 NW 17th Avenue, received low bid of \$84,500 from Mulford Stow, 2117 NW 17th Ave., Miami, for construction of warehouse rear of existing building.

**MIAMI** — Plant — Brewer Asphalt Co., C. C. Patterson, 230 Salamanca Ave., plans construction of one-story boiler house, 3900 NW 21st Street, cost \$70,000.

**MIAMI** — Warehouse — Florida Plywood Service, E. F. Crawford, 3825 NE First Court, Miami, will construct warehouse, 77 NW 71st Street, cost \$12,500; one-story.

**MIAMI** — Building — Jack M. Seoville, 3910 SW 58th Street, seeking permit for construction of one-story storage building, 1735 NW 28th Street, cost \$12,800.

**MIAMI** — Plant — Cornell Co., 2751 NW 72nd Street, Dade County, has plans completed by Howard B. Knight, 210 Almeria Ave., Coral Gables, for construction of one-story manufacturing plant, NW 27th Street.

**MIAMI** — Plant — B. R. Puritt, Box 403 Kendall, will erect hydroponic plant, Killian Drive, cost \$14,500.

**MIAMI** — Addition — Miami Bottled Gas Co., 1701 NW 7th Ave., let contract to James M. Albert, 3140 N. Miami Ave., for addition to plant, 7200 Block NW 8th Ave., cost \$15,000.

**MIAMI** — Addition — National Provision Co., Maurice H. Daum, 230 NW 5th Street, let contract to L. T. Davidson, 30 NE 68th Terrace, for construction of one-story addition to meat processing plant.

**MIAMI BEACH** — Office Building — Intercontinent Construction Co., William Stoker, Vice Pres., has contract for office building and garage, 340 Alton Road for Miami Beach

River, estimated cost \$4,000,000.

**ATHENS** — Building — Anderson Auto Parts Co., let contract to G. M. Caskey & Son, Athens, for construction of one-story, brick, concrete and steel auto parts and service building, cost \$40,000.

**ATLANTA** — Radio Station — General Broadcasting Co., Georgia Terrace Hotel, plan radio broadcasting station, estimated cost \$17,500.

**ATLANTA** — Warehouse — Consolidated Realty Investment, Inc., 32 Pryor St., NE, will construct warehouse, cost \$37,000; concrete block and steel construction.

**ATLANTA** — Plant — Peaslee-Gaulbert Corp., Louisville, Ky., contemplates construction of a plant to manufacture restaurant and hotel equipment, refrigerators, etc.; to contain about 150,000 sq ft. floor space.

**ATLANTA** — Garage Building — Sub-contracts let for construction of 6-story garage building on Spring Street, rear of Cone Street. Garage for Roy Livingston for which Griffin Construction Co., 452 Spring, N. W., is general contractor.

**ATLANTA** — Garage — Victory Motors, Inc., has CPA approval for garage truck service and repairs, cost \$124,000.

**ATLANTA** — Building — Sub-contracts let for construction of mechanical building for Atlanta Journal.

**AUGUSTA** — Sales Building — Morgan Truck & Tractor Co. plans sales and service building and warehouse, cost \$50,000; one-story brick, steel sash, plate glass front; plans complete.

**AUGUSTA** — Building — Rayless Co., will soon call for bids, for construction of building.

**AUGUSTA** — Factory — Lily Tulip Cup Corp., Walter Bergman, President has CPA approval for construction of modern factory on a 12-acre site on Wrightsboro Road, near Fifteenth Street, estimated cost \$850,000; plant, permanent brick building of one-and-two-story design, will be used for manufacture of paper drinking cups, containers for processed food, ice cream, and milk, and packages for frozen foods.

**AUGUSTA** — Building — Yancey Brothers Co., 634 Whitehall St., SW Atlanta, has CPA approval for one-story road machinery sales and service building, cost \$30,000; corrugated metal siding, concrete block, metal roofing, etc.

**AUGUSTA** — Dam & Power House — Bids opened for concrete dam and power house, Clark Hill Project.

**CAIRO** — Plant — Roderick & Henry Hester, have CPA approval for construction of freezer locker plant, cost \$30,000.

**CHIPLEY** — Plant — Chipley Development Corp., have CPA approval for construction of plant for manufacture of men's clothing, cost \$25,000.

**COLUMBUS** — Plant — Georgia Webbing & Tape Co., let contract to Muscogee Home Builders, for construction of plant for manufacture of webbing and tape, cost \$35,000.

**COLUMBUS** — Building — Fred Carpenter has CPA approval for construction of plumbing and heating sales and service building; to cost approximately \$25,000.

**COLUMBUS** — Elevator — Columbus Iron Works let contract to General Elevator Co., 399 Bishop St., NW Atlanta, Ga., for electric freight elevator, 14,000 pounds capacity to be installed in a building serving four floors.

**DECATUR** — Store — Wilfred L. Keel, 207 11 Pryor St., SE, Atlanta, has sketches in progress for construction of one-story ice cream drive-in building; hollow tile and stucco; concrete slab roofing; plate glass front.

**DUBLIN** — Woolen Mill — M. T. Stevens Textile Co., Andover, Mass., let contract to C. M. Guest & Sons, Anderson, S. C., for construction of a woolen fabric mill, cost \$700,000; brick and steel, part one-story and part 3-story, no basement, 340x390.

**GRIFFIN** — Plant — Lowell Bleachery, have CPA approval for construction of dyeing and finishing plant, cost \$175,000.

**JACKSON** — Improvements — Pepperton Cotton Mills, plans deep well and complete waterworks system cost \$150,000.

**LAGRANGE** — Alterations — Dixie Cotton Mill, plans alterations to textile mill, cost \$50,000; CPA approval.

**LAGRANGE** — Addition — West Point Manufacturing Co., let contract to Newman Construction Co., LaGrange, for construction of addition to cotton mill.

**LAGRANGE** — Creamery — Dairyman's Association, Otis Statham, President, received bids for modern dairy plant, cost \$100,000; stainless steel equipment has been purchased and partially installed.

**LAGRANGE** — Dairy Building — Troup Cooperative Dairies, Inc., let contract to

Industrial  
Contracts in  
16 Southern  
States Total  
\$497 Million  
in 12 Months

Railway Co., Thomas E. Lewis, Vice Pres.  
**MOORE HAVEN** — Plant — Ruth Sugars, J. E. Caldwell, President, Breaux Bridge, La., contemplates moving raw sugar plant from Louisiana and re-erecting it at Moore Haven, Fla., estimated cost \$250,000; plant capacity 2,000 tons daily.

**PANAMA CITY** — Factory — J. G. Scherf, Andalusia, plans construction of a shirt factory, estimated cost \$125,000; masonry, concrete and steel construction.

**TAMPA** — Furniture — O'Neal Furniture Co., Inc., incorporated with J. C. O'Neal and Associates; furniture.

**TAMPA** — Addition — Lykes Brothers contemplates construction of an addition to packing plant; to cost approximately \$60,000; concrete and steel construction.

**TARPON SPRINGS** — Warehouse — Sponge Fishing Co., has plans in progress for construction of warehouse with office facilities.

## GEORGIA

**ALBANY** — Power Plant — Georgia Power Plant, plan electric steam plant on Flint

Daniel Lumber Co., for construction of dairy building.

**MACON** — Power Plant Addition — Georgia Power Co., Atlanta, let contract to Southeastern Engineering Corp., for 4th unit at plant Arkwright in Bibb County; work consists of foundation and superstructure only, approximately 7500 cubic yards concrete.

**MANCHESTER** — Addition — Calloway Mills has CPA approval for addition to textile weaving plant, cost \$50,000.

**MOULTRE** — Addition — Bids opened for construction of an addition to curing and cooler building 2A for Swift & Co.

**SAVANNAH** — Building — General Chemical Co., 40 Rector St., New York, plan construction of storage and processing building for sulphate of alumina, cost \$40,000.

**THOMASTON** — Plant — Knox Corp., P. O. Box 311, will construct manufacturing plant for construction of prefabricated houses, cost approximately \$145,000.

**THOMASTON** — Elevator — Thomaston Cotton Mills let contract to General Elevator Co., 399 Bishop St., NW Atlanta, Ga., for one electric freight elevator with motorized automatic doors serving six floors.

**WAYCROSS** — Plant — Air Reduction Sales Co., 50 E. 42nd Street, New York City, plans construction of an oxygen gas manufacturing plant, cost \$165,000.

**WAYCROSS** — Plant — John H. Swisher & Sons, Inc., Jacksonville, Fla., let contract to Waycross Construction Co., at \$150,000, for construction of cigar manufacturing plant.

## KENTUCKY

**LOUISVILLE** — Building — Also Windows of Kentucky, Inc., incorporated with William E. Edwards, Jr., and Associates with capital stock of \$10,000.

**RENFRO VALLEY** — Recordings — Ekko Recording Corp., incorporated with John Lair and Associates, with capital stock of \$150,000.

## LOUISIANA

**ARABI** — Rebuilding — American Refinery, N. B. Scott, Mgr., has plans in progress for wharf.

**BATON ROUGE** — Subdivision — North Baton Rouge Development Co., Ernest Wilson, Pres., plans development of 1,000,000-acre site on Dougherty tract; spur track planned from I & A railroad west to end of plot and south to Our Lady of the Lake Sanitarium.

**BATON ROUGE** — Addition — Keans Laundry let contract to Caldwell & McCann, Baton Rouge, at \$85,983, for construction of two-story brick addition.

**BATON ROUGE** — Project — Ethyl Corp., has CPA permit for construction project, cost \$227,000.

**LAFAYETTE** — Building — Morgan and Lindsay let contract to Horace B. Rickey, Lafayette, for construction of two-story building.

**LAKE CHARLES** — Radio Antenna Tower — A. Stanford Dudley, has applied for War Department to authorize construction of radio antenna tower on concrete foundation.

**NEW ORLEANS** — Film Exchange — Warner Brothers Pictures Film Exchange is awaiting CPA approval for proposed two-story reinforced brick, limestone and concrete and steel frame building on corner of Cleveland and South Liberty Sts.; low bid at \$342,208.

**NEW ORLEANS** — Addition — Bohn Motor Co., has CPA approval for construction of extension to present building, 2700 S. Broad Street, cost \$50,000.

**NEW ORLEANS** — Air Conditioning — James M. Todd, Consult. Engr., 217 Peters St. let contract to Equitable Equipment Co. for installation of 15-ton air conditioning system at 20 Common St. for Eastern Air Lines.

**NEW ORLEANS** — Storage Tanks, Etc. — American Brewing Co., 717 Bienville Street, received bids for construction of 10 fermenting tanks and eighteen storage tanks.

**NEW ORLEANS** — Warehouse — Consolidated Companies, Inc., let contract to Perrilli-Rickey Construction Co., 1530 S. Rendon Street, for construction of a new wholesale warehouse building, Tulane Avenue, cost \$152,000.

## MARYLAND

**ANNAPOLIS** — Railway & Bulkhead — John W. Warren, Arnold, filed application with District Engineer's Office, for permission to construct marine railway 100 feet into Mill Creek and bulkhead near confluence of Mill Creek and Magothy River in Anne Arundel County.

**BALTIMORE** — Addition — Robert S. Green, Inc., has plans completed for addition to warehouse, 3228 Frederick Ave., cost \$15,000; masonry; one-story.

**BALTIMORE** — Addition — Good Humor Ice Cream Co., let contract to John K. Ruff Co., 100 W. 22nd St., for addition to ice cream plant, 2001 Windsor Ave., cost \$38,000; brick, 2-story.

**BALTIMORE** — Storage Building — Maryland Baking Co., let contract to Louis Tapper,

3705 Barrington Road, for storage building, rear 1200 S. Eutaw Street, cost \$30,000; masonry.

**BALTIMORE** — Addition — Terry Sakellos, 1101 S. Streeper Street, has plans completed for addition to building, 2903-09 O'Donnell St.; masonry; one-story.

**BALTIMORE** — Fuel Oil Tank — C. Hoffberger Co., Monument & Forrest Sts., will construct fuel oil tank 1020 N. Linwood Ave., at \$20,000.

**BALTIMORE** — Canopy — Mount Vernon-Woodberry Mills, Inc., let contract to Cummins-Hart Construction Co., 2023 N. Charles St., for canopy, 3600 Clipper Mill Road.

**BALTIMORE** — Plant — A. S. Abell Co., Baltimore & Charles Sts., will receive bids for publishing plant, Bath-Centre-Guilford Ave.; masonry; 10-story and basement.

**BALTIMORE** — Alterations — Fidelity Storage Co., receiving bids for alterations to storage building, 2110 Maryland Ave.

**BALTIMORE** — Building — Hearst Consolidated Publications, Inc., Baltimore News-Post and American Department, C. Dorsey Warfield, Publisher, Pratt and Commerce Streets, have acquired building, 502-506 N. Holliday Street, and making repairs for publication of the Pictorial Review section of Sunday edition; secure additional press.

**BALTIMORE** — Hut — Deliveries, Inc., 1337 Washington Boulevard, let contract to Timothy T. McGarry, 416 Poplar Grove St., for construction of quonset hut, 1701 Wicomico Street, cost \$10,000; one-story; metal.

**BALTIMORE** — Bus Operation Base — Consolidated Engineering Co., 20 E. Franklin St., has contract for bus operation base, Eastern Ave., and alterations to bus operation base at Carroll Park, for Baltimore Transit Co.

**BALTIMORE** — Bus Operation Base — Consolidated Engineering Co., 20 E. Franklin St., has contract for bus operation base, Kirk Ave., for Baltimore Transit Co.

**BALTIMORE** — Building — H. B. Davis Co., H. Braith Davis, President, 1600 Bayard Street, has leased its subsidiary the Masury Paint Co., 1500 Russell Street, for use as office and warehouse space.

**BALTIMORE** — Addition — C. C. Lang & Co., Inc., Charles E. Lang, 725 N. Haven Street, plans construction of an addition for the preliminary grading of pickles; one-story; 50x125.

**BALTIMORE** — Addition — American Copage & Steel Drum Co., Morris Latinsky, Partner, adding new millwork department to present plant, 141 North Kresson Street.

**BALTIMORE** — Plant — Lenderking Metal Products, Inc., Arthur L. Nelson, 1000 S. Linwood Ave., has plans completed for erection of storage structure on property adjoining plant, 2811 Dillon Street.

**BALTIMORE** — Plant — Dad's Root Beer Co., William Berns, President, 2800 N. Talman Street, Chicago, Ill., have acquired building, 1500 Russell Street for establishment of a branch bottling plant.

**BALTIMORE** — Building — National Can Refining Co., Russell K. Glover, Jr., President, has completed plans for an addition, 5401 Pulaski Highway; one-story and will be used for retinning milk cans.

**BALTIMORE** — Warehouse — Phillips Brothers, let contract to Fidelity Construction Co., Munsey Building, for construction of masonry warehouse, 614-16 S. Bond St., cost \$40,000.

**BALTIMORE** — Building — Becker Pretzel Bakeries, Inc., let contract to Mueller Construction Co., for addition to building, rear 2549-55 W. Baltimore St., cost \$48,000; masonry construction.

**BALTIMORE** — Plant — Petroleum Lubricants Co., Inc., C. Albert Hanson, President, 518 North Patterson Park Ave., has acquired land to the rear of 1 to 37 S. Kresson St., for erection of a plant to manufacture oils and greases.

**BALTIMORE COUNTY** — William Niemeier, Delight, let contract to M. L. Robertson, 3408 Chestnut Ave., for construction of garage, Reisterstown Road, cost \$20,000; masonry; one-story.

**BALTIMORE COUNTY** — Plant — Frederick Tower & Erecting Co., has contract at \$20,000 for F. M. transmitting plant, Edmondson Blvd., Extension.

**BRENTWOOD** — Addition — Han-Road, Inc., have CPA approval for addition to sheet metal shop—ducts, space heaters, cost \$44,219.

**CEDARHURST** — Addition — Congoleum-Nairn, Inc., Alver E. Sprinkle, Manager, has received CPA approval for construction of \$3,200,000 addition; 60 x 700 feet.

**COCKEYSVILLE** — Boiler House — Veneers, Inc., O. M. Williamson, President, Beaver Dam Road, plans new boiler house.

**MOUNT WASHINGTON, IND. BRANCH** — Building, Etc. — Maryland Bolt & Nut Co., let contract to J. H. Williams Co., 1122 Cathedral Street, for construction of pickling building, cost \$14,840 and drainage and grading, cost \$2,800.

**SPARROWS POINT, BR. BALTIMORE** — Power Plant — Bethlehem Steel Co., has CPA approval for construction of a \$1,802,238 power plant at Sparrows Point; all-over cost of the

plant, including equipment, estimated at \$2,188,245; will increase the capacity of the existing hot strip mill, cold sheet mill and cold tin plate mill; approximately 60,000 kilowatts of additional current will be generated.

## MISSISSIPPI

**BASSFIELD** — Hosiery Factory — Board of Supervisors of Jefferson Davis County will call for bids on new hosiery factory.

**BROOKHAVEN** — Garage — Clark Motor Co., New Orleans, La., for construction of new garage building, cost \$50,000.

**FOREST** — Factory — Cape Cod Shirt Co., of Fall River, Mass., completing plans for erection of men's shirt manufacturing factory, cost approximately \$135,000.

**GULFPORT** — Warehouse & Office — George P. Hopkins, has contract for new one story brick office and warehouse building for United Gas Corp., to be erected on 23rd Ave., near L & N Railroad, cost \$30,000.

**KOSCIUSKO** — Plant — Col. J. B. Poole having plans prepared for construction of 800-locker cold storage plant.

**POPLARVILLE** — Garment Plant — Board of Supervisors of Pearl River County received low bid from Dye & Mullings, Columbia, at \$107,275 for proposed new garment plant.

**PRENTISS** — Equipment — C. J. Lambert let contract to Industries Sales Corp., 2627 Jackson Ave., New Orleans, La., for refrigeration equipment to be installed in frozen food lockers.

**STARKVILLE** — Addition — J. W. Sanders Cotton Mill, Charles Newell, Supt., plans addition of third addition to mill to take care of new machinery to be installed; work underway on second-story addition on the southeast corner and also on the east wing three-story addition.

**TYLER TOWN** — Garment Plant — Mayor and Board of Aldermen received low bid of \$169,900 from G. C. Whataker, Tyler town, for construction of one-story and basement factory building, containing 30,000 sq. ft. of floor space.

## MISSOURI

**COLUMBIA** — Plant — Alex Bradford, 906 Broadway, has CPA approval for dry cleaning plant, cost \$12,300.

**JOPLIN** — Building — Junge Biscuit Co., William Perry Sharp, Vice-President and General Manager, let contract to Jones Brothers Construction Co. for construction of plant.

**NORTH KANSAS CITY** — Addition — Corn Products Refining Co., has CPA approval for addition to plant laboratory, dextrose sugar plant, cost \$31,730.

**KANSAS CITY** — Rebuilding — Rupert Diecasting Co., R. E. Eaton, General Manager, let contract to Miller and Stauch, Railway Exchange Building, for plant; will cover approximately 18,000 sq. ft., cost approximately \$40,000.

**KANSAS CITY** — Lumber Yard — King Lumber Co., Inc., 1725 Troost Ave., incorporated with Louis Lowenstein and Associates with capital stock of \$100,000; lumber yard.

**KIRKWOOD** — Laundry — Ashdon Corp., incorporated with W. Ashley Gray, Jr., and Associates; steam laundry.

**RICHLAND** — Factory — Richland Development Corp., has CPA approval for shoe factory, cost \$65,000.

**SPRINGFIELD** — Improvements — Armour Creameries, H. L. Cleveland, Manager, 518 N. Campbell, has under construction improvements for which Chapman and Bramer are general contractors, cost \$45,000.

**SPRINGFIELD** — Garage — Carson and Mitchell have contract for \$14,000 garage for City utilities at Main and Water; contract calls for new heating system and wiring in regulator building.

**ST. LOUIS** — Alterations — Aeme Laundry Co., 2908 Easton Ave., contemplates remodeling present automobile salesroom and garage into laundry and dry cleaning plant.

**ST. LOUIS** — Building — Pallen Motors, Inc., 4525 Delmar Boulevard let contract to John B. Gutman Construction Co., 220 N. 4th Street, for auto sales and service building, North Side 5900 Block Delmar, cost \$80,000.

**ST. LOUIS** — Machine Shop — Southern Alloy Foundry, Inc., 117 Bowen, incorporated with Louis G. Strotz and Associates; general foundry and machine shop business.

**ST. LOUIS** — Factory — M. J. Sullivan, 2308 S. 7th let contract to Smith-Cooke Construction Co., 4829 Easton, for one-story factory, 1509 Sublette, cost \$40,000.

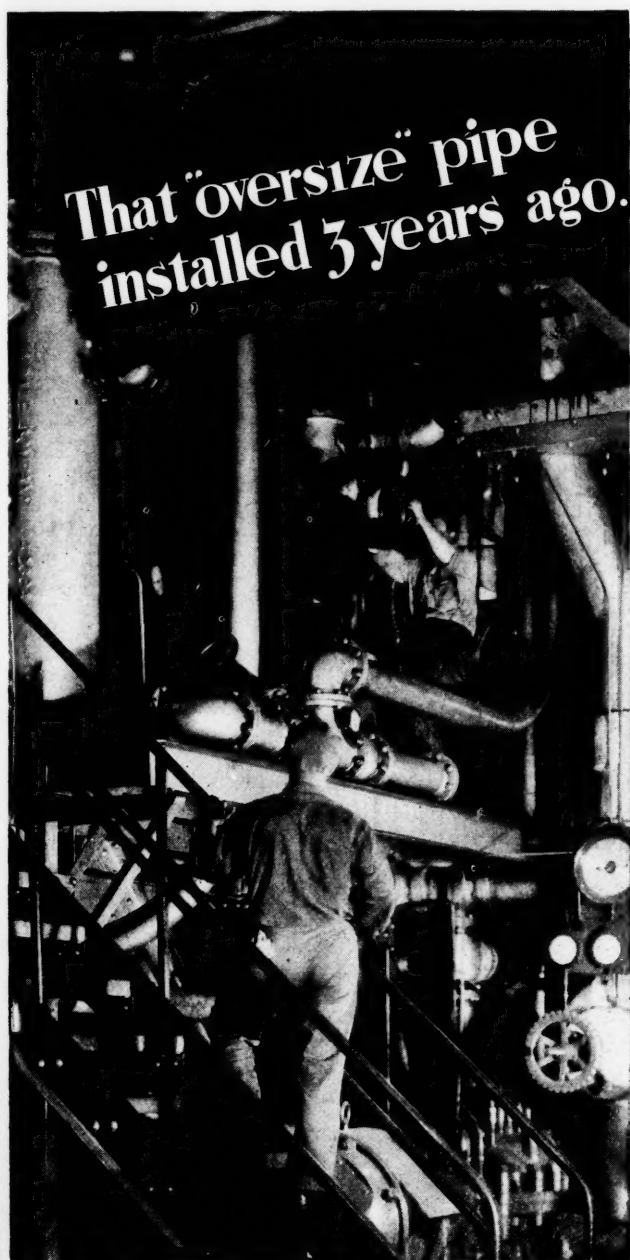
**ST. LOUIS** — Loading Dock, Etc. — O. P. Dodge, Chiles Co., 2315 S. Sidney Street let contract to R. W. Toitz Co., 4875 Easton Ave., for one-story cooler and loading dock, 2310 Sidney Street, cost \$14,000.

**ST. LOUIS** — Shop — Superior Sand Blasting Co., 3015 N. 11th St., let contract to Robert R. Wright, 8021 Forsythe Boulevard, Clayton, for one-story sand blasting shop, 5400 Birch.

**ST. LOUIS** — Mill — Carr-Trombley Manufacturing Co., 3014 N. 2nd Street, has CPA approval for planning mill, cost \$18,300.

(Continued on page 154)

## INSTALL STEEL PIPING ADEQUATE FOR TOMORROW'S NEEDS



That "oversize" pipe  
installed 3 years ago...takes care of the  
new extension



THE owner of an eastern food plant is congratulating himself on what he had always thought was an extravagant, though necessary investment. A few years ago, when he installed new processing equipment, the only pipe he could secure quickly was what he thought was "oversize." But he put it in.

Now greater demand for his product is leading him to increase his plant capacity. One thing he isn't worrying about is his piping system. That "oversize" pipe of 3 years ago is adequate to handle the extension. Today he *knows* it was an excellent investment.

Too many owners--and contractors, too--are inclined to rely on minimum pipe sizes--not anticipating that what's barely adequate now may soon be completely inadequate. Remember--it's long run economy to install steel pipe adequate to do a job today AND TOMORROW.

Distributors in all industrial markets handle Youngstown pipe in a wide range of sizes.



### YOUNGSTOWN

THE YOUNGSTOWN SHEET AND TUBE COMPANY

GENERAL OFFICES - YOUNGSTOWN 1, OHIO.

Export Offices - 500 Fifth Avenue, New York City

Manufacturers of

CARBON - ALLOY AND TOOL STEEL

Pipe and Tubular Products-Sheets-Plates-  
Electrolytic Tin Plate-Coke Tin Plate.

Conduit-Bars-Rods-Wire-Cold Drawn Car-  
bon Steel Rounds-Tie Plates and Spikes.

# LITTLE GRAINS OF SAND

*"Little drops of water, little grains of sand,  
Make the mighty ocean, and the pleasant land."*



Many of the more intelligent among union labor leaders are recognizing the beginnings of a change in the attitude of their members. These members no longer blindly follow the dictates of their padrones. They are now asking why they should follow and why their so-called leaders should dictate instead of lead. Will the next step in the labor movement parade be the evolution of real leaders or will it result in anarchy, revolution and the final stage of the recurring historical drama — despotism?

Would any employee or any employer, for that matter, would any American in any walk of life tolerate the economic organization of the nation's coal mines into a single, gigantic trust whose owners could freeze the people? Why should the nation, which means you and me among 140 million others, permit such power to remain concentrated in any hands? The power itself must be destroyed, not regulated by building up the power of government to combat it. That way lies fascism.

Since the unemployment bugaboo dreamed up in the late summer of 1945 by the professional theorists and planners failed to materialize these same crystal gazers next foresaw the clouds of inflation about to shed their deluge. They lustily thumped their tubs in support of OPA until the nation very properly rebelled and threw off this socialistically interfering yoke. Now these same prophets of gloom are busy preparing the way for a general depression in 1947 or 1948. They are bringing to bear all precedents of history in an effort to frighten the country into a panic.

Only partially successful in its effort to keep hard-to-get trac-type tractors at home where they are badly needed in the construction, lumbering, housing, mining and agricultural industries, Caterpillar Tractor Co., Peoria, Illinois ships 42 of these scarce machines to the Russian states of Byelorussia and the Ukraine. An industry protest to C.P.A. opposing their orders for U.N.R.R.A. resulted in a 50% reduction in original quotas, but it is expected that C.P.A. orders will still draw off more than 7,000 track-type tractors from domestic supply lines.

They admit the present prosperous condition of the country, but discount it all by saying that depressions always follow wars and that since this was the greatest war in history it should be followed by the greatest depression.

It is becoming evident that bankers are becoming more cautious in advancing commercial loans, and that they are gradually increasing the former low rates of interest. In addition many bankers are refusing to accept long term loans on which they had looked with favor the past few years. There is nothing alarming about this situation. It is merely a start in the direction of sound banking practice where credit (and there is an abundance of it) is extended to sound enterprises on the merits of

each individual case with the expectation of a reasonable income from interest for the lenders.

Regional producers of consumer products will play a bigger role than ever in delivering value and quality to their customers, according to R. Kirby Longino, president of Longino & Collins, Incorporated, a food producing company in New Orleans. He said that smaller manufacturers and producers are planning to build up their own brands through advertising in local distribution areas and by broadening the base of local demand for their products will be able to deliver more value for the consumer dollar.

Competition by government is being charged by American manufacturers of pottery, vases and household wares made of clay, glass, etc. RFC's subsidiary,

*(Continued on page 38)*

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## BOOM TOWN...183 YEARS LATER

Ever since its founding in 1764, St. Louis has stood as the gateway to America's great Southwest, today the fastest-growing industrial section of our country.

Now, 183 years later, St. Louis is a city of many and widely diversified industries; a city which is still growing and going ahead at a rapid pace.

The Laclede Gas Company has been serving St. Louis for more than a hundred years, supplying this important industrial center with this important industrial service.

Laclede now distributes a mixture of natural and manufactured gas; straight natural gas to some large industrial users. As soon as increased pipe line facilities permit, Laclede will be prepared to supply straight natural gas to all.

Many and unusual are the uses for gas in industry.

In the ceramic industry, in the steel industry, in the food industry, in the lumber business, in the manufacture of clothing, shoes, hats, furniture, tobacco, petroleum, paints, chemicals—in practically every industry gas plays its vital part.

The highly skilled industrial engineers on Laclede's staff are always at your service to show how gas can contribute to your own particular industry.

You will find St. Louis a good place to settle—and grow.

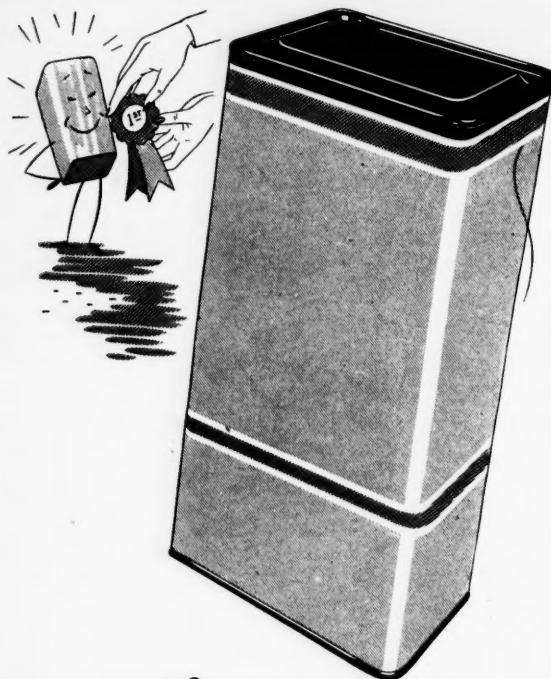


ST. LOUIS

MISSOURI

# Sefton's PRIZE PACKAGE!

**THE VERSATILE STRING-OPENING  
CAN THAT SERVES MANY PRODUCTS!**



Out of the many outstanding cans  
that the Sefton Fire Can Company creates... the  
string-opening can is probably the most versatile...  
the most practical one you've seen in many a day.  
It opens easily and can be closed again. It's factory sealed  
... tamper-proof. That's why noted manufacturers  
of a countless variety of products depend  
upon the string-opening can for protection  
and package appeal!



**DISTRICT OFFICES:** • Los Angeles • San Francisco • Denver • Tampa  
Chicago • Des Moines • New Orleans • Boston • Detroit • Kansas City  
St. Paul • Omaha • New York • Cincinnati • Cleveland • Dallas  
Oklahoma City • Pittsburgh • Memphis • Nashville • Salt Lake City  
Houston • Seattle

(Continued from page 12)

the U. S. Commercial Co., organized to help Germany and Japan by sales of such goods made in those countries, has been accused of bringing considerable quantities into the country, free of duty and conveyed by Army transports free of freight charges.

Union drives for still higher wages, if they succeed, will intensify the unfortunate position of those groups that have lagged behind in inflationary procession—clergymen and schoolteachers for example. The inflationary effect of additional union gained pay raises will also tighten the screws further on that already tightly pinched sector of the population that has taken the worst beating of all, those dependent on fixed incomes. The losses of this group from inflation will be disastrous and irretrievable.

The country is desperately in need of new freight cars because relatively few cars were built during the depression years or during the war, and wear and tear on existing cars has been extremely heavy. In spite of these facts the production of the car building industry has fallen in the last two months to an average of 2,750 cars, compared with a monthly capacity of 14,000 cars, due largely to inability to obtain steel. The builders ended the month of November with a backlog of 47,898 cars on order, and it is anticipated that an increasing number of orders will be placed by the railroads as the result of the recently granted increase in freight rates.

Fruit growers in some southern states are considering installation, near airports, of processing and chilling plants to extract juice from oranges for air shipment. The juice, in paper containers, might move overnight to northern cities for doorstep delivery possibly along with the milk.

One of the customary means of measuring the trend of productivity has been a yardstick supplied to management which is appealingly called "output per man hour." This yardstick has been seized upon by some to "prove" the increased productivity of workers. Actually, this yardstick is a device which psychologically assigns to workers all of the gains from better tools and management but which really fails to measure the workers' actual contribution in any sense.

Prior to the war, most employers with pension plans required older employees to retire when they reached a specified age (usually sixty-five). Because of the acute shortage of labor during the war year automatic retirement was not generally enforced. Older workers, with their special skills, became a valuable part of the working force and were encouraged to remain at work. Management has now found it difficult to reinstate automatic retirement for super-

(Continued on page 50)

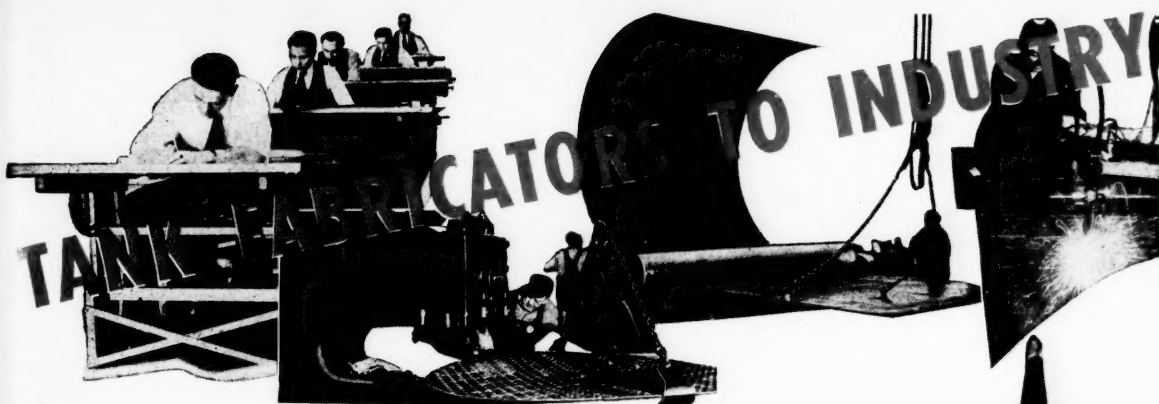
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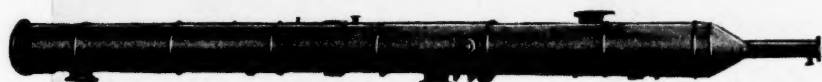
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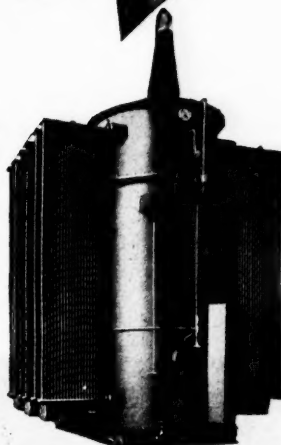
JOHN N  
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Whether it's just a simple closed cylinder or a massive complex processing tank—it's a job that can be done best by Nooter. From the blueprint—through the fabrication—and to the assembled, tested tank and even in erection—Nooter engineering takes over with experience and with the most modern efficient tank building facilities available. Tank fabrication of alloy, clad or lined construction is at its best with Nooter DuraPure Welding. For safety, permanent strength and resistance to corrosion the DuraPure Weld, exclusive with Nooter, is the symbol of fine tank building.



5'6" x 120' steel fractioning tower, complete with bubble trays and caps, fabricated and DuraPure Welded by Nooter.



28,000 KVA transformer tank and radiators fabricated and DuraPure Welded by Nooter in two knock-down sections.

### SAVE THOSE WORN MECHANICAL PARTS FROM EXPENSIVE REPLACEMENT with **NOOTER METALLIZING**

Shafts, bearings, cams and mechanical parts, no matter how badly worn, scored or corroded, are built up with original metal or superior metal and then machined to original or revised dimensions by the Nooter Metallizing Division.



Flywheel and air compressor crankshaft built up to fit new flywheel bore.



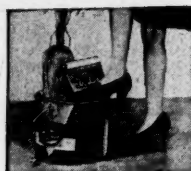
Worn 4" x 96" shaft being Nooter Metallized to original dimensions with 4 metal spray units in simultaneous operation using .8% carbon steel analysis deposition.



Battery of 8' x 20' stainless steel jacketed, stainless steel milk storage tanks of DuraPure Weld construction.

Whatever your tank problems or plans, consult Nooter. Write, wire or telephone. Nooter engineers and estimators are at your service.





→ **1. OPEN.** Simply step on the lever and the Wringer opens. It's an easy, one-footed operation.



**2. DIP.** Cleverly designed opening guides mop against front roller, where greatest pressure is exerted.



**3. WRING.** Then step on foot treadle and withdraw mop. Foot keeps rollers tightly compressed, and balances Pail. No springs to get out of order.

**Easy as 1-2-3**  
to DEMONSTRATE  
to OPERATE, to SELL

THE NEW AND  
GREATLY IMPROVED  
*Patented*  
**DeLuxe**  
MOP WRINGER  
PAIL



The New and Greatly Improved DeLuxe Mop Wringer Pail is the satisfying answer to the problem of quickly, simply and easily wringing out dirty mops. That's why women by the thousands want and will buy it.

With the New DeLuxe, one foot does the work. A woman simply steps on the treadle, drops the mop into the water and lifts it out. Her hands never touch the dirty water.

Definitely not top-heavy, the New DeLuxe is virtually impossible to tip over. Big enough for the job (actual capacity 14 quarts) it is still light enough for a woman, yet strong enough for a janitor. All parts are galvanized and there are no springs or mechanism to get out of order.

Advertising in such widely-read magazines as The American Home, Better Homes and Gardens, House and Garden, Good Housekeeping, Ladies' Home Journal and Woman's Home Companion is acquainting your customers with this new and greatly improved DeLuxe. Women expect to find it on display when they come into your store. Order from your Jobber.

**S**CHLUETER MFG. CO.  
ST. LOUIS, MISSOURI

(Continued from page 38)

annuated workers since so many exceptions were allowed during the war period.

In addition to the understandable reluctance of older workers to retire, some of the unions have questioned management's right to retire workers at sixty-five under a pension plan. One union brought action before the National Labor Relations Board and took the position that the company was refusing to bargain on pension plan layoffs in violation of the Wagner act. Another union threatened to strike if the company enforced an automatic retirement ruling. In another case, the union claimed that the employee who had reached retirement age and who wanted to continue in his job cannot be severed without his consent if he has the ability to work; that the union should be consulted on severance policy; and, finally, that such action on the part of the company would violate the contract clause requiring application of seniority when layoffs are necessary.

The Consumer Credit Committee of the American Bankers Association recommends abolition of Regulation W which the Board of Governors of the Federal Reserve Board imposed on consumer credit in 1941. Says Mr. Carl M. Flora, chairman of the committee: "while we supported it during time of war and after the war, we now think it is outmoded." He points out that the terms imposed by this regulation on the use of consumer credit compel monthly payments on the part of buyers of such a size that many people, particularly veterans and families in the lower and middle income groups, are prevented from buying necessary things, such as automobiles, refrigerators, washing machines, and other appliances.

Great Smoky National Park in North Carolina and Tennessee was the most popular of the parks this season. Its visitors totalled 1,147,377. It attracted 300,000 more tourists than Yellowstone, the oldest of the parks. As an illustration of the importance highway postwar vacation travel is the volume of traffic over Blue Ridge Parkway, linking Shenandoah National Park to Great Smoky Park. Although not yet completed, it was used by a total of 1,095,733 persons.

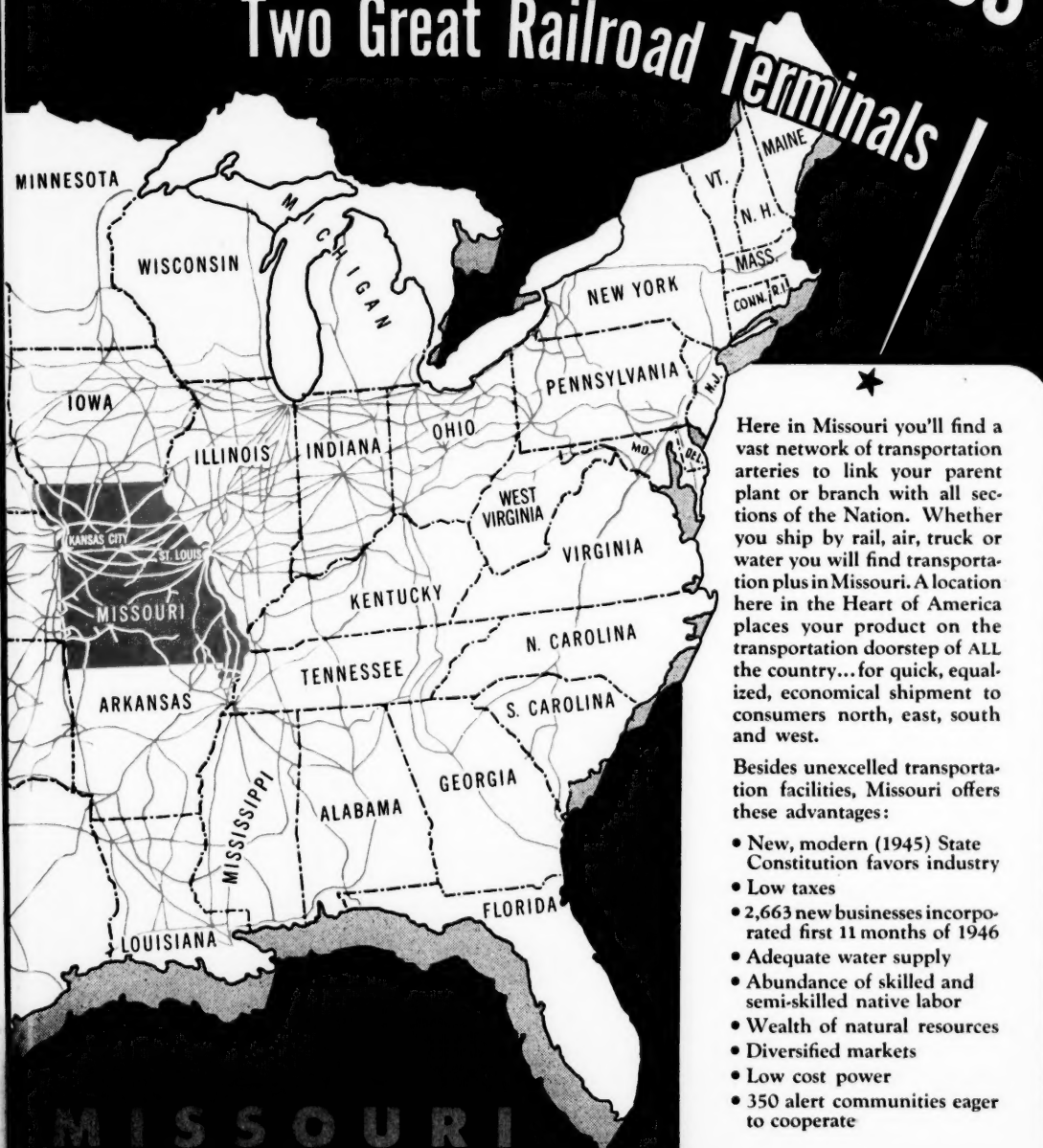
In a recent pamphlet *The Law of Labor* issued by American Affairs, Murray T. Quigg, the author, says this:

"Early laws written for the protection of the rights and dignity of the individual wage earner, and generally well considered and thoroughly debated before enactment, such as the workmen's compensation laws, have been widely approved by wage earners, employers and the public. On the other hand, later legislation which has abandoned the individual to the dictatorship of majorities and private societies was passed under pressure, without protracted debate, in times of confusion of thought, and has produced bitterness, confusion and disorder."

(Continued on page 54)

# You Can Serve 43 States

## Haul from Missouri's Two Great Railroad Terminals



Here in Missouri you'll find a vast network of transportation arteries to link your parent plant or branch with all sections of the Nation. Whether you ship by rail, air, truck or water you will find transportation plus in Missouri. A location here in the Heart of America places your product on the transportation doorstep of ALL the country...for quick, equalized, economical shipment to consumers north, east, south and west.

Besides unexcelled transportation facilities, Missouri offers these advantages:

- New, modern (1945) State Constitution favors industry
- Low taxes
- 2,663 new businesses incorporated first 11 months of 1946
- Adequate water supply
- Abundance of skilled and semi-skilled native labor
- Wealth of natural resources
- Diversified markets
- Low cost power
- 350 alert communities eager to cooperate

MISSOURI  
OF AMERICA



World's Largest and Only Manufacturer  
Devoted Exclusively to Developing, Per-  
fecting Coin Handling and Detecting  
Devices...for the Coin Vending Machine  
Industry.

Producers of

SLUG REJECTORS	
	MOUNTING BRACKETS
COIN SWITCHES	
	COIN RETURN ELECTRO MAGNETS
CABLE ASSEMBLIES	
	COIN OPERATED (SINGLE OR DUAL) RADIO TIMERS
CREDIT STORING DEVICES	

**NATIONAL SLUG REJECTORS, INC.**

5100 SAN FRANCISCO • SAINT LOUIS 15, MISSOURI

FOREIGN AND DOMESTIC COIN HANDLING UNITS SERVE THE WORLD

(Continued from page 50)

The belated ICC decision granting freight rate advances should release many purchasing programs previously held in abeyance for retirement of older cars by many railroads. In the interest of the railroads, and the industries they serve—actually as a part of the assembly line, linking "parts" with "final assembly"—the railway car building industry should reach full capacity, 14,000 cars monthly, as quickly as possible. That new freight cars reach the rails quickly and in the largest possible numbers is vitally important to all industries.

It is clear that prices through the influence of the wage-price spiral will tend to move and are, in fact, moving beyond the ability of important parts of their potential markets to pay. A \$1,000.00 prewar motor car has become a \$1,500.00 postwar model. Any national industrial wage increase results in substantially the same proportional increase in costs and prices. The pity of all this is that many people do not seem to realize that the prevailing course can benefit some only temporarily, and even then only at the expense of others.

The New Orleans *Times-Picayune* indulges in a little far-sighted thinking anent President Truman's minimum wage bill. After citing the more prevalent objections, it goes on to say that the proposed law, together with the 40 hour week, would place management in the position of being unable to use any workers except those capable of the highest man-hour output. The result of this, it claims, is that, within a few years, millions will be rendered unemployable, and, in order to take care of them, the social agencies will be crying for greatly increased appropriations.

There is one way to continue to pay increasing wages to industrial workers, and that is to make it possible for them to keep on increasing their per capita production. The way to do that is to keep on increasing the investment per worker so that he can keep on using better and better tools. That can be done only if the government does not tax away the savings of the investors, and does not prevent them from earning fair returns.

Excessive expenditures are eventually paid for, under an unbalanced budget, in an inflation that falls with equal force upon poor and rich alike. Inflation is the equivalent of a flat income tax on everybody, without exemptions. It is also the equivalent of a flat capital levy on savings accounts and insurance policies, without exemptions.—*N. Y. Times*.

If the South is to go forward economically, it must retain in increasing degree the wealth that comes from processing materials into usable products.

MANUFACTURERS' RECORD FOR



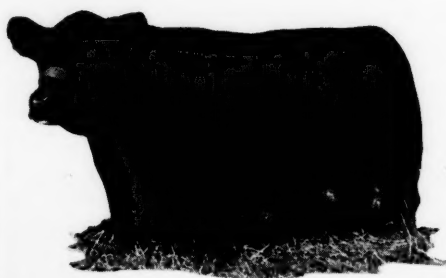
# Joplin

## CAPITAL OF THE SOUTHWEST'S EMPIRE DISTRICT

● 50,000 population . . . heart of the rich EMPIRE DISTRICT MARKET of Missouri, Kansas, Oklahoma and Arkansas . . . center of lead and zinc mining and milling and progressive diversified industries . . . Gateway to famous OZARK Playgrounds . . . rich in raw materials, labor supply, power and fuel facilities.



● Joplin is also center of fertile agricultural, dairy, fruit and livestock country—is famous for its strawberries.



# OPPORTUNITY LAND

KANSAS MISSOURI  
OKLAHOMA ARKANSAS

## YOU'RE WANTED

in the "Empire" district of the Southwest where "cities in the country" provide more profitable and wholesome living for both business and people.

"Empire" communities though smaller in size are *big* in industrial advantages.

Overnight from great markets — all three industrial fuels, coal, natural gas, oil — railroads, motor freight and major airlines.

Rich in raw materials and semi-finished products — diversified resources from the farm, mine, and forest. Good living and recreational opportunities in the "Playgrounds of the Ozarks."

A stable, permanent people — American born, resourceful, intelligent, easy to train with a high degree of mechanical skill.

Here you will find a friendly atmosphere — friendly to you — friendly to your business. Join the growing group of "Empire" industries which have found greater opportunity here.

Write us for a copy of "Looking Through Clear Glasses" — which describes industrial opportunities in the "Empire" district of the Southwest.



INDUSTRIAL DEVELOPMENT DEPARTMENT  
**DISTRICT ELECTRIC COMPANY**

JOPLIN, MISSOURI

"Serving in the 'Empire District' of the Southwest for over 37 years"

MANUFACTURERS RECORD FOR

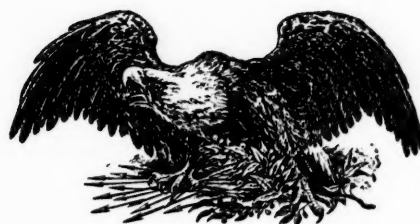
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JANUAR



*"What Enriches the South Enriches the Nation"*

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## ORGANIZED LABOR IS A COMMODITY

Organized labor is the Nation's economic problem Number one.

All of the troubles which labor unions now inflict on us stem from the root of false premise in our conception of the true nature of "labor" itself.

Your earning capacity, your labor, is an integral part of you while you possess and control it. As such it is not a commodity. But suppose, either voluntarily or involuntarily, you surrender your ownership of yourself and, with others, group your labor to be priced in the market place. Then your labor becomes merely a piece of goods in a bolt of cloth from which the clothes of civilization are being created. It no longer remains a part of your personality. It is merely a grain in the pound of sugar that we used to be able to buy.

Based on the premise of this absolutely true conception of organized labor, the solution of it as a problem is a simple one indeed. Organized labor has become modern society's substitute for the slavery of past centuries. It is the chattel of erstwhile individuals who have surrendered control over their own birthright

for the diluted mess of pottage that their exploiters permit to trickle down to them. Put a whip in the hands of Lewis or Petrillo and there stands Simon Legree.

Our lawmakers and jurists have too long overlooked the fact that your labor and mine, directed by us individually, should have an entirely different legal status from labor sold to consumers by paid professionals. This false conception born of typical American sentimentality has been responsible for the passing era, dedicated to that fictitious character, the common man. Let us pray that it will be replaced by an age of reason which recognizes man as a personage, and establishes his right to the enjoyment of the fruits of his own creation. Once the ownership of that right is transferred to another it ceases to be an integral part of an individual and becomes a mere commodity.

Additional regulatory labor legislation is neither necessary nor wise. It is both foolish and futile to pile Ossa on Pelion. Outright repeal of the Clayton, Norris-LaGuardia and Wagner acts would return our economic life to sanity.

# Readjustments Faced by the South

**R**ECOGNITION is spreading rapidly among the Southern populace that their South is economically very sick despite some feverish symptoms misinterpreted as rosy health and just as rapidly the South is turning to science in search for remedies.

Admittedly, the South is in the midst of a storm of post-war readjustments. This is beclouding, to a marked degree, the impressive vigor and thoroughness with which efforts are being initiated to remove the causes of illness even before the diagnosis is complete.

Some Federal funds and substantial contributions of Northern money are being pooled with large and increasing amounts of Southern cash as well as skill. The plans for new or expanded research, as announced from time to time in recent months, present in bold relief the futility of the former Southern complacency. These new activities are spurred on by liberal interminglings of impatience, discontent and optimism.

The curative programs have the active support of leaderships in many phases of every-day affairs and are directed toward a multitude of objectives. These leaderships, working through both old and newly formed groups, are impelled by widely varying motives that range from pure love of fellow man to the raw desire for greater financial riches.

Impressive, however, is the fact that the planning and initial efforts are so directed that any accomplishments will tend to conserve human resources while exploiting natural resources with abler judgment and increased efficiency. The outcome of these varied efforts, co-ordinated only by a similarity of purposes, is unpredictable just now. This is true because the tasks are so complex—but bright prospects are created for incalculable economic benefits over the long-term.

A distressing assortment of aches and pains in the South's economy are combining with resilient human nature to inspire this Southern self-defense. Among the major causes for alarm are these:

1. King Cotton's confusing pre-

dicament and the apparently inevitable tremendous displacement of rural populations.

2. Nylon and rayon invasion, which is upsetting industry, trade and consumer preferences.

3. The Negro, who is remaining in the South instead of migrating en masse northward as was done after World War I.

4. Britain's cotton buying pool, which restricts American opportunity for exports.

5. Uncertainties involving Federal farm aid programs.

6. Labor unions' membership campaigns and political activity.

7. Threatened collapse of the public education system.

8. Lack of facilities for restoring and preserving public health.

9. Failure to develop valuable but isolated mineral resources.

With these and other "symptoms" recognized, the big question now is: What can the doctors do?

Everybody seems to understand that the Nation must give the South many forms of material aid and spiritual encouragement. Yet, it is realized that the job is one which mainly the South itself must, and should, do.

The newly authorized five-year Federal aid program for research in the South is expected confidently by most Southern leaders to become a vital factor in this scientific approach to solutions for Southern shortcomings. Appropriations for this program are expected to be made available within a few months by the Washington Government.

This Federal fund, proposed for both State and Regional research, chiefly as related to agriculture, ranges from \$2,500,000 for the first year to \$20,000,000 for the fifth year, under the Hope-Flannagan amendment to the Bankhead-Jones Act.

Individual state programs will be directed by such men as these North Carolina scientists: Dr. L. D. Bayer, dean of agriculture, and Dr. John H. Lampe, dean of engineering, of State College. They, like their con-

by

J. A. Daly

temporaries in other Southern states, already are directing activities that conserve the state's human resources and skills, which, as in most other Southern states, have been migrating to the East and North. At the same time, a great aggregate of research is maintained by Southern technical-agricultural colleges, but all this is falling far short of urgent requirements.

The Southeast's textile industry has become intensely interested in developing and retaining textile engineering know-how, along with progressing research. The Textile School of N. C. State College is assisted by a 20-year, \$1,000,000 fund to supplement salaries of outstanding faculty members.

Georgia Tech, in Atlanta, Ga., and Clemson College in South Carolina have similar financial support but in lesser amounts. Through these expenditures from funds provided by the benefited industry itself there is being created a dependable and capable supply of young textile engineers and supervisors.

No organization in the South is more enthusiastic or realistic over opportunities for economic progress through research than is the Southern Research Institute. This two-year-old body of leaders in industry and science is headed by Dr. Wilbur A. Lazier. Widely ramifying researches are being advanced by 36 men and women who comprise his highly capable staff.

These young people—their average age is 31 years—are financed by voluntary contributions from industry. The Institute now possesses about \$1,000,000 and research funds still are inflowing. Spending is at the rate of about \$250,000 a year.

The super-enthusiast in the S. R. I. Advisory Council is Chairman Thomas W. Martin, Alabama Power Co. president. His constantly expounded theme is that only through scientific and engineering achievement can the South overcome now clearly revealed, staggering economic and social problems and promise progress in keeping with latent opportunities.

This view was given emphatic support at a recent S. R. I. confer-

(Continued on page 165)

# The South is on the March

**T**HE preponderant sentiment in the South at the present time is one of unbounded confidence in the future of this section. An air of progress pervades the entire region and the populace possesses a spirit of alertness and enthusiasm which bids well for the good of this area as well as for the country in general.

These observations are based upon both long association with the economic life of the South and a survey of existing conditions and business prospects. On a recent trip through the six southeastern states of Virginia, North Carolina, South Carolina, Georgia, Alabama and Florida, I had an opportunity to talk with many persons throughout our territory. There was one unfailing response to the question "What do you think the future holds for your section?" The collective answer to that question was one of unbounded confidence that the years immediately ahead will bring the greatest prosperity the South has ever known. This confidence is based on solid facts which include the knowledge that many manufacturing and distributing enterprises are turning their eyes to the South as a site for expansion of their operations.

This feeling of confidence which seems to be so universal goes even deeper. It is based upon a realization of what the South possesses in the way of material resources, as well as recent experiences in the industrialization of the area which has already brought unprecedented prosperity to the region as a whole.

Much has been said and written in recent years about the industrialization of the South and for the past generation the eyes of the Nation have been focused on this area because of the rapid growth of industry which has taken place here. Figures reflecting this growth are high-

\* Editor's note: We asked Mr. Powell to give us the benefit of his observations as to the business situation in the South, as well as prospects of the region for the future. Mr. Powell's article was written in response to that request. His observations will be read with unusual interest by reason of his long acquaintance with the South and its economy.

by

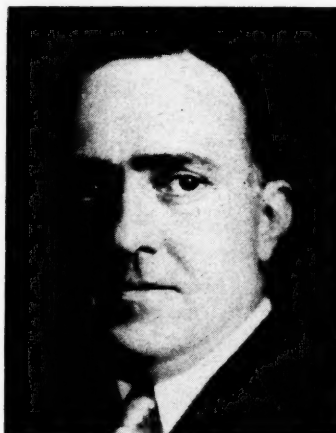
**Legh R. Powell, Jr.**

*President*

*Seaboard Air Line Railroad Company*

ly significant. During this time we have seen the volume of manufactures doubled, tripled and quadrupled until the products of industry now exceed 12 billion dollars a year in volume.

The South accounts for over 80 per cent of our cotton textiles; three-fourths of the Nation's rayon output; 100 per cent of the naval stores production; 100 per cent of the phosphate rock; 90 per cent of the kaolin; 100 per cent of the bauxite; and 90 per cent of the fullers earth, to mention only a few of our "firsts." Everyone knows of the pre-eminence



**Legh R. Powell, Jr.**

of the South in other important lines such as iron and steel, textiles, tobacco manufacturing, furniture making, the production of fertilizers and chemicals, meat packing, canning and preserving.

The tremendous growth of the pulp and paper industry in recent years has no parallel in our economic history. While the major position of our pulp and paper production in the South is still in kraft, the manufacture of various grades of white paper is on the increase and the production of highly refined sulphite pulp has assumed important proportions. There is no longer

any doubt as to the adaptability of southern pine for the manufacture of any kind of paper made from woodpulp. In addition to such conventional uses as the manufacture of paper bags, cartons and packages, woodpulp from southern pine is being used increasingly in the manufacture of rayon, plastics, cellophane, artificial wool, varnishes, lacquers and kindred products.

New fields of industrial utilization are continually being explored in the realm of wood cellulose, resulting in the creation of new processes and new products, all based ultimately on wood fibre as the principal raw material. Relatively speaking, the development of the wood cellulose industry has scarcely begun and in the growing forests of the South we have a material resource of almost inestimable value.

The rayon industry, that giant of American enterprise, which from a small beginning twenty years ago has grown to the point that United States production leads the world, gives promise of continued expansion. More than 75 per cent of America's rayon production is in the South and 90 per cent of our rayon is made from woodpulp, a fact of great importance in view of our fast growing wood cellulose industry.

Twenty-five years ago the chemical industry in the United States was comparatively unimportant. The chemical industry is now one of the giants of American enterprise with hundreds of products comprising many of our most important daily needs. A large part of this activity now centers in the South in such manufactures as sulphate of ammonia, synthetic nitrate of soda, fertilizers, rayon, pulp and paper, petroleum products, vegetable oil refining and food processing. By reason of its vast store of raw materials the South has every reasonable prospect for benefiting from the further expansion of its chemical industry. Our soils produce an almost endless range of crops, fruits and vegetables and the processing of foods is assuming ever-increasing importance. Notable illustrations are the canning of citrus fruits in Florida and

*(Continued on page 164)*



Above—Abreu & Robeson, architects and engineers of Atlanta, Ga., have plans in the preliminary stage for the first 150-bed unit of the St. Joseph's infirmary which later will be enlarged to 300-bed capacity. The structure will contain eight floors, basement, sub-basement and solarium with roof terraces and will be of reinforced concrete construction with masonry facing. Windows and door frames will be metal and walls will be plaster and tile finish; ceilings, plaster and acoustic; flooring, tile, terrazzo and rubber tile. The building will be completely air conditioned and equipped with four automatic elevators, pneumatic tube systems and intercommunicating telephones. Services will include physical medicine, radiology, pediatrics, surgical and medical department, out-patient department, laboratories, eight operating rooms and two cystoscopic rooms.

by

Samuel A. Lauver

## Southern Construction Sets Peacetime Record — Totals \$1,797,532,000 Last Year

**S**OUTHERN construction awards reached the highest peacetime value on record during 1946 when the total for the sixteen states below the Mason and Dixon line amounted to \$1,797,532,000, a figure that is outranked only by two other yearly totals. These are the \$2,922,808,000 of 1941 and the \$3,877,848,000 of 1942, both war boom years.

The year ended much stronger than it started, with the December valuation placed at \$134,481,000, or almost thirty-three and one-half million dollars ahead of the value of January 1946 contracts. December's figure was twenty-four per cent ahead of its counterpart of the previous year, although the twelfth month total represented a drop of nine per cent from the November total.

Fifty-eight per cent above the total for 1945, the \$1,797,532,000 of 1946 embraced \$497,755,000 for industrial construction, \$409,545,000 for private building, \$359,882,000 for highway and bridge work, \$278,381,000 for engineering projects and \$251,969,000 for public building.

Increases were registered in all five categories, although the largest were in the private building, and highway and bridge fields. Private building in 1946 totaled \$409,545,000 as compared with the \$127,153,000 of 1945. The 1946 figure for roads, streets and bridges was \$359,882,000, or more than three times the 1945 total for such construction.

Industrial construction contract values for the twelve months represented the largest among the various types of work, with a total of \$497,755,000. This was a substantial

### SOUTH'S CONSTRUCTION BY TYPES

	December, 1946 Contracts Awarded	December, 1946 Contracts to be Awarded	Contracts Awarded Twelve Months 1946	Contracts Awarded Twelve Months 1945
<b>PRIVATE BUILDING</b>				
Assembly (Churches, Theatres, Auditoriums, Fraternal) . . . .	\$ 615,000	\$ 8,476,000	\$ 24,011,000	\$ 17,617,000
Commercial (Stores, Restaurants, Filling Stations, Garages) . . . .	11,588,000	5,373,000	71,221,000	35,057,000
Residential (Apartments, Hotels, Dwellings) . . . . .	10,882,000	29,057,000	291,140,000	61,416,000
Office . . . . .	2,719,000	586,000	23,173,000	13,063,000
	\$ 25,804,000	\$ 43,492,000	\$ 409,545,000	\$ 127,153,000
<b>INDUSTRIAL</b>				
PUBLIC BUILDING	\$ 63,276,000	\$267,309,000	\$ 497,755,000	\$ 465,937,000
City, County, State, Federal . . . .	\$ 3,990,000	\$ 32,800,000	\$ 145,764,000	\$ 186,250,000
Housing . . . . .			9,007,000	20,965,000
Schools . . . . .	5,425,000	59,902,000	97,198,000	33,310,000
	\$ 9,415,000	\$ 92,702,000	\$ 251,969,000	\$ 240,525,000
<b>ENGINEERING</b>				
Dams, Drainage, Earthwork, Airports . . . . .	\$ 7,163,000	\$ 15,001,000	\$ 191,532,000	\$ 112,185,000
Federal, County, Municipal Electric . . . . .	1,809,000	12,715,000	26,629,000	28,104,000
Sewers and Waterworks . . . . .	5,852,000	43,339,000	60,220,000	42,893,000
	\$ 14,824,000	\$ 71,055,000	\$ 278,381,000	\$ 183,182,000
<b>ROADS, STREETS AND BRIDGES</b>				
	\$ 21,162,000	\$ 15,277,000	\$ 359,882,000	\$ 117,619,000
<b>TOTAL</b> . . . . .	<b>\$134,481,000</b>	<b>\$489,835,000</b>	<b>\$1,797,532,000</b>	<b>\$1,134,416,000</b>

increase over the 1945 industrial total of \$465,937,000. Private building's total was the second largest. Highway and bridge projects were in third place, followed by engineering and public building in the order named. The 1946 engineering total was \$8278,381,000, as compared with \$183,182,000 in the previous year. Public building increased. The 1946 total was \$251,969,000; that for 1945, \$240,525,000.

The outlook for the current year is encouraging. Estimates place the value of expected construction throughout the country at \$15,000,000,000. A large proportion of this figure will be expended for southern projects. The total will probably be devoid of some of the inflationary characteristics of the 1946 figure. Somewhat decreased costs are predicted as material difficulties are untangled, labor becomes more plentiful and government restrictions are further removed.

The year-end statement issued by the Department of Commerce places the country's total of 1946 construction at \$10,000,000,000, or more than double the \$4,800,000,000 figure placed on work during the previous year. Eighty-five per cent of the 1,200,000 new dwelling units set as the 1946 goal, or about 1,000,000 units were started, the report said.

It continued: "Problems facing the construction industry in 1946 were so acute that unusual measures were taken. Since these controls were effective to a large extent, their impact on the industry could not be disregarded and they caused considerable controversy within and outside the industry as to whether the checks and accelerations offered by the operation of these controls were worth the adjustments that had to be made to permit them to operate."

Much of the wartime backlog is expected to be carried over into 1947. "If this backlog is to be substantially reduced in 1947," states John L. Haynes chief of the Commerce Department's construction division, "the \$15,000,000,000 goal will be broken down about as follows:

"Forty per cent for residential building, which means about 1,100,000 housing units including many multi-unit dwellings; 30-35 per cent private non-residential building to

## SOUTH'S CONSTRUCTION BY STATES

	December, 1946		Contracts Awarded Twelve Months 1946	Contracts Awarded Twelve Months 1945
	Contracts Awarded	Contracts to be Awarded		
Alabama	\$ 4,612,000	\$ 23,152,000	\$ 72,872,000	\$ 100,147,000
Arkansas	566,000	21,503,000	45,060,000	10,459,000
Dist. of Col.	1,387,000	581,000	19,196,000	33,609,000
Florida	21,192,000	21,702,000	205,235,000	83,631,000
Georgia	5,495,000	28,262,000	135,615,000	52,185,000
Kentucky	625,000	2,543,000	44,216,000	20,202,000
Louisiana	4,416,000	13,080,000	86,168,000	57,746,000
Maryland	2,445,000	29,157,000	144,460,000	83,499,000
Mississippi	1,915,000	9,822,000	64,260,000	30,027,000
Missouri	5,118,000	24,152,000	32,817,000	44,218,000
N. Carolina	3,299,000	10,150,000	74,953,000	64,891,000
Oklahoma	521,000	22,137,000	49,341,000	34,597,000
S. Carolina	6,559,000	5,122,000	128,627,000	20,348,000
Tennessee	3,534,000	18,574,000	101,385,000	59,308,000
Texas	57,409,000	240,898,000	488,777,000	349,817,000
Virginia	14,818,000	10,245,000	70,475,000	62,957,000
W. Virginia	270,000	8,807,000	13,775,000	20,775,000
<b>TOTAL</b>	<b>\$134,481,000</b>	<b>\$489,835,000</b>	<b>\$1,797,532,000</b>	<b>\$1,134,416,000</b>

provide additional space and facilities for expanding business; and the remaining 25 to 30 per cent for public works—highways, public buildings, schools, hospitals and recreational facilities."

The expenditure revised upward to \$185,000,000 for the flood control program authorized for the Corps of Engineers will mean continuation of construction on projects which were under way early last August when the directive was issued drastically curtailing such work. Additional construction may also be permitted, as well as some of the most urgently needed flood control projects.

The South, as indicated by MANUFACTURERS RECORD figures, made forward strides in road building during 1946. The country as an entirety showed a lag in such work due to labor and material shortages, high bids and lack of engineering personnel in state highway departments,

according to Public Roads Commissioner Thomas H. MacDonald.

Reports showed the country's state highway work to embrace 43,600 miles of roadway estimated to cost \$740,000,000. The figure included contracts for work on 17,900 miles of highway in the federal-aid primary and secondary road systems, these involving \$512,000,000. Projects financed entirely from state and local funds called for expenditures of \$228,000,000 for 25,700 miles of improvements.

Mr. MacDonald predicts that shortages of labor and materials may continue to delay the highway program in 1947. He urges the States to proceed with plans for projects that can be placed under contract when conditions are favorable.

December's \$134,481,000 is ninth among the months of the year. The figure includes \$63,276,000 in industrial awards, \$25,804,000 for private

(Continued on page 151)

Below—Transmitter station designed for KCMO Broadcasting Co., of Kansas City, Mo., by Bloomgarten & Frohwerk. The project is located on a 160-acre tract in Clay County. Its transmitter capacity will be 50,000 watts.





Above—Florida plant where the newly developed continuous still is in operation.

## Continuous Still, Developed for Producing Rosin, Turpentine

**F**OR more than 150 years the gum naval stores industry has been producing its turpentine and rosin by the "batch" method and dreaming of the day when it could be done in one continuous operation. That day has come.

As a result of research by naval stores scientists of the U. S. Department of Agriculture both a new and

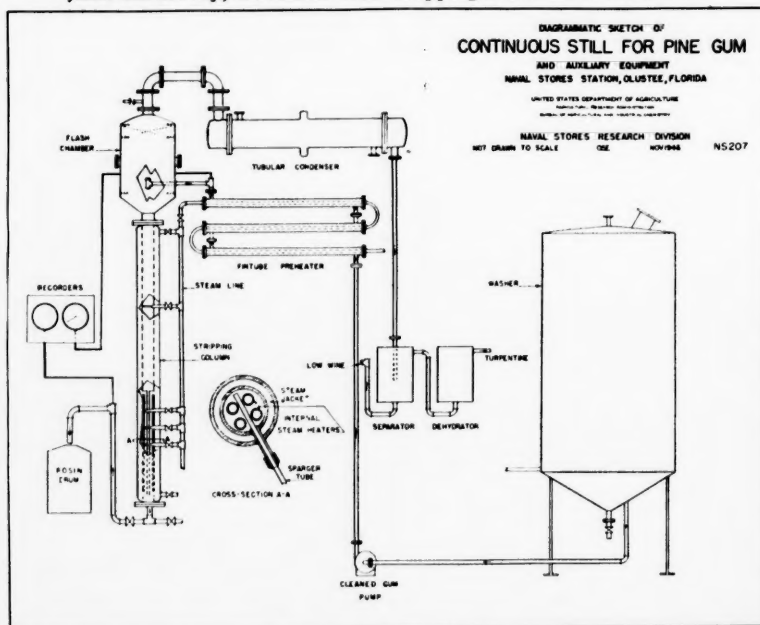
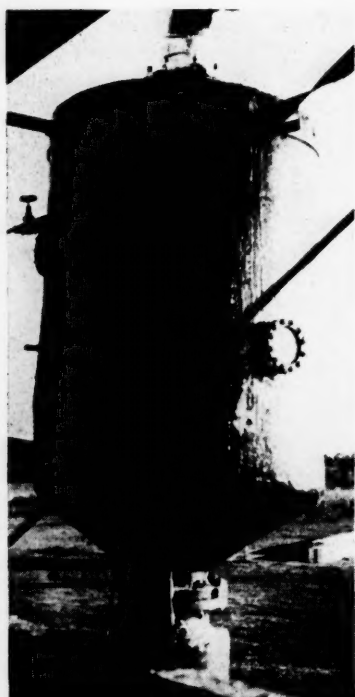
a more economical method for the production of turpentine and rosin is being tried on a semi-commercial scale for the first time this season. The method consists of putting preheated cleaned gum or sap from the southern pine tree into one end of a new type continuous steam still and taking off turpentine and rosin at separate points at the other end.

Main features of the new still consist of a standard eight inch pipe or

upright column about 20 feet high with a large bowl or "flash" chamber at the top, a preheating coil where the gum is warmed before it enters the still, a condensing tank where the turpentine vapors are liquefied, and suitable pipe outlets for the turpentine and rosin.

Preheated to a temperature of 350° Fahrenheit, cleaned gum enters the flash chamber through a spray nozzle. The flash chamber is

*Left—The flash chamber, in which the gum becomes vaporized turpentine and flows out the top, the heavier rosin dropping downward to the drums.*



so named because approximately 80 percent of the turpentine in the gum flashes off at this point in the operation. This effect is visible through glass peepholes installed in the thoroughly insulated and jacketed chamber. Turpentine vapors are flashed out through a pipe at the top of the chamber and conducted through a condensing tank and then through suitable pipes to storage.

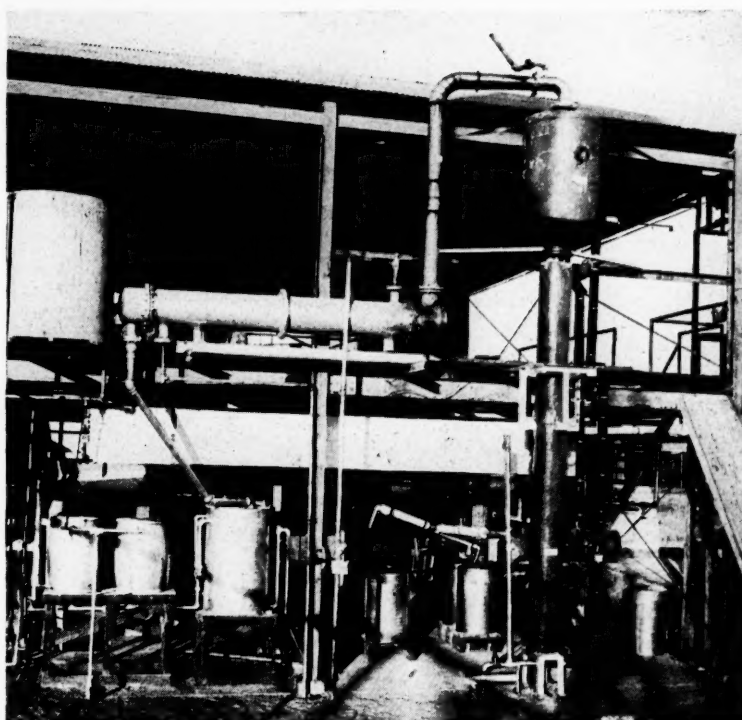
The rosin not being volatile flows towards the bottom of the large upright column which is surrounded by a steam jacket carrying steam under a pressure of about 125 pounds. As the rosin flows down this stripping column it meets an ascending current of live steam which drives out the last of the turpentine. Dry high melting rosin leaves the bottom of the column and is piped into suitable containers.

In normal operations turpentine and rosin start flowing from the proper outlets in about five minutes after the gum enters the column, and with the experimental equipment about 15 minutes are required to fill a 520-pound rosin drum with the hot liquid rosin that is flowing continuously from the two-inch rosin outlet pipe.

I. E. Knapp, and George P. Shingler of the Naval Stores Research division of the U. S. Bureau of Agricultural and Industrial Chemistry which developed the still at its Olustee, Florida station claim that the new continuous still has several advantages over the conventional "batch" type still that is in general use today. The first big advantage is that it is continuous. No time is lost in charging and discharging as is the case with batch stills.

Being continuous it is believed that a more uniform grade of rosin

(Continued on page 160)

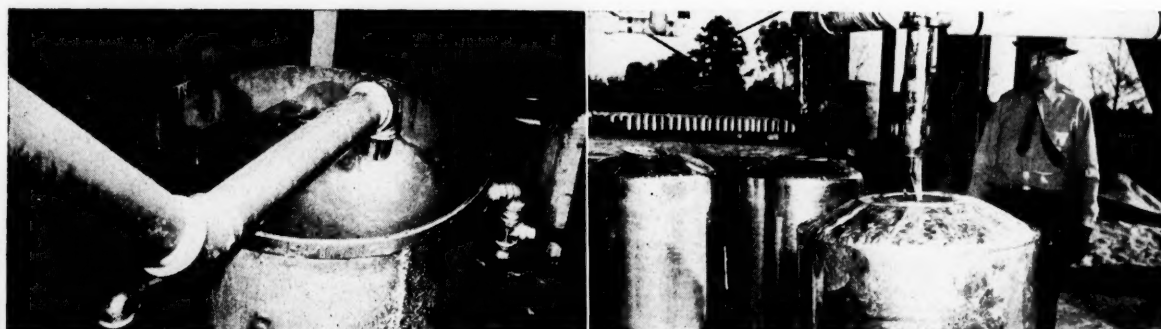


*Above—Close-up of the new continuous still.*

*Below—Gum used in the newly developed process.*

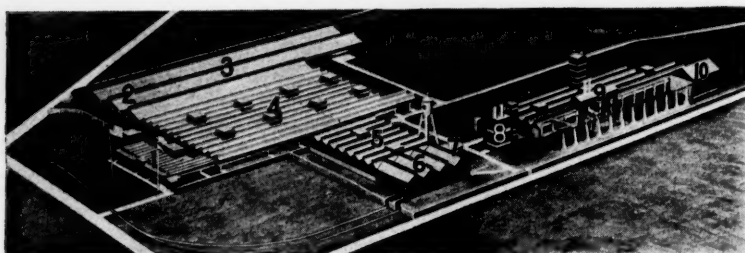


*Below—Left—Turpentine flows from one outlet. Right—Rosin oozes from a second pipe.*





Above—Manufacturing building of the huge Memphis works being erected by International Harvester Co.



Left—How the Memphis plant will look when finished. Building No. 4 is the manufacturing structure shown above. Others are: 1—Administration building; 2—stores and service parts warehouse; 3—warehouse, finished subassemblies and end product; 5—forge shop; 6—steel storage; 7—metallurgical laboratory; 8—boiler house; 9—foundry; 10—sand storage.

## International Harvester Company Establishing Major Southern Plants, Big Distributor Depot

**I**NTERNATIONAL HARVESTER COMPANY took into account the many evidences of growth and development in the South when it was considering its post-war manufacturing and distribution facilities expansion program. As a result, three major projects are now under construction which the company hopes will be of enduring benefit to southern agriculture and its people.

The three projects include a wholesale distributing service parts depot at Baltimore, Maryland; a manufacturing plant at Memphis, Tennessee; and a manufacturing plant at Louisville, Kentucky.

The Baltimore parts depot is the first of a network of 11 such depots which will cover the United States. International Harvester will invest approximately a million dollars in the construction of this depot. It will serve as a wholesale parts distribution center for more than 30 company-owned branches and more than 1,000 retail dealers handling International Harvester motor trucks, farm and industrial power equipment in nine states of the eastern seaboard from South Carolina northward. This expansion project is being made in order to offer faster and more efficient service to the company's customers.

Growth and development of industry and agriculture in Maryland and the surrounding area and the increasing importance of Baltimore as a distribution center were factors in the site selection. Baltimore's excellent rail and water facilities were important considerations.

The new parts depot will contain approximately 180,000 square feet of floor space and will have a customer parking lot of about 24,000 square feet. The building will be one story in height and is being constructed of steel and masonry. It was engineered and designed by the company's industrial engineering and construction department assisted by Raymond Loewy Associates, industrial designers.

Morrow Brothers, Inc., is the general contractor for the Baltimore parts depot job. It has been engaged since last summer when it started grading, foundations, and underground sewer work. Grading and excavation work has been completed and all foundation walls are completed.

The masonry work for the parts depot is well under way, about half complete at this writing. Half of the structural steel for columns and trusses is at the site and erection of steel is well under way.

Plumbing work has been started

and contracts have been let for installation of the sprinkling system and the air conditioning system. Bids are now being considered for sewers and some street paving which must be done.

Occasional setbacks have been experienced and are anticipated because of delays in receipt of material for one reason or another. The general progress of construction, however, is satisfactory and at a rate which should assure completion in the second calendar quarter of 1947.

### Memphis Works

A careful study of International Harvester's post-war prospects indicated the need for an additional farm implement plant located near sources of raw material and geographically situated to serve the South and Southwest and to take advantage of water transportation. Memphis was selected as the best located city to serve these needs.

The Memphis Works was planned by Harvester for post-war construction to help meet anticipated expanded demands for farm machinery both in this country and abroad, and to locate in the South for more economical distribution a plant that would manufacture many farm machines used by southern farmers.

Chief among the products to be

manufactured at Memphis Works is the mechanical cotton picker now being hand-built in small quantities at various places within the International Harvester Company. When the new manufacturing plant is complete most cotton picker parts will be manufactured there and final assembly of the picker will be carried on there.

The company also plans to produce hay balers at Memphis. Plows, harrows, cultivators, and other implements especially adapted to southern agriculture, and now made at the company's Chattanooga Works, also will be manufactured at Memphis Works. Other farm machines widely used in the South, including disk plows, middlebusters, listers, and others, eventually will be produced in the new works.

All buildings at the Memphis site will be of modern design and of one-story, steel construction. They will include an administration building, manufacturing building, forge shop, steel storage building, warehouse, grey iron foundry, metallurgical laboratory, and boiler house and compressor room. All told, Memphis Works will have in the neighborhood of one and one-quarter million square feet of floor space in all the buildings. Provision will be made for receiving and shipment of materials and products transported by water. A dock and shipping facilities will be constructed on the Mississippi River.

The general contract for the erection of buildings at the Memphis Works site was awarded to the Virginia Engineering Company of Newport News, Virginia, in March, 1946. The general contractor is providing for the erection of all buildings required, a job which includes side-walls, concrete and brick work, some sewer work, plumbing, paving, electrical, heating, fire protection, road work, painting, some underground

work, and finish grading.

Steel construction work in connection with the buildings is being performed by the Gage Structural Steel Company of Chicago. Other contracts have been let for glass work and roofing.

Progress in the construction work at Memphis has been only slightly delayed by materials shortages and other factors and is now proceeding as rapidly as conditions permit. Grading, installation of water mains, sewers, and other underground work is completed. Footings for all buildings have been completed. Floor slab was started in some of these buildings in advance of steel erection. Steel is now being erected for all buildings which are to be built except the foundry and that steel is now scheduled for shipment. Steel erection is complete for the manufacturing building, warehouse, forge shop, and steel storage building.

Most progress has been made on the all-important manufacturing building. Its roofing is being installed, walls are going up, and corrugated glass is being installed. Heating, piping, and electrical sys-

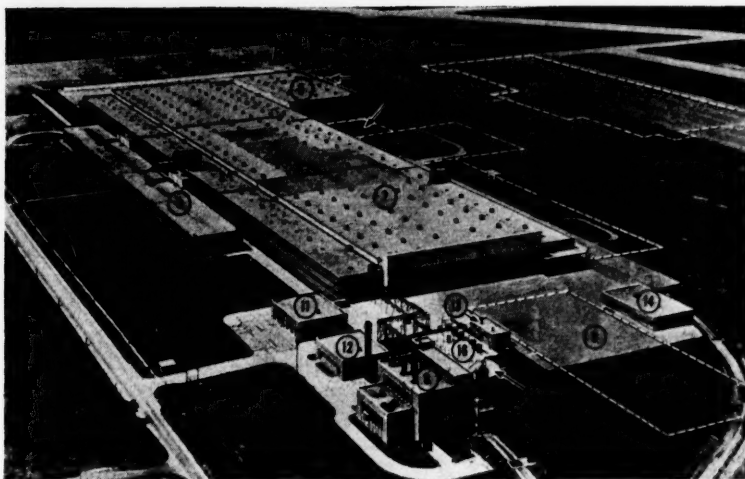
*Above—International Harvester's new Louisville works with proposed expansion outlined. Proposed are: 3—motor building; 4—motor test building; 6—loading dock building; 7—storage and foreign shipping building; 9—shear building; 10—foundry. Other structures are: 1—administration building; 2—manufacturing building; 5—forge shop; 8—boiler plant; 11—garage; 12—oil building; 13—substation; 14—materials reclamation building; 15—tank; 16—transformer yard.*

tems are being installed in this building. Great effort is being made to get the building in shape to receive machinery some time early this year.

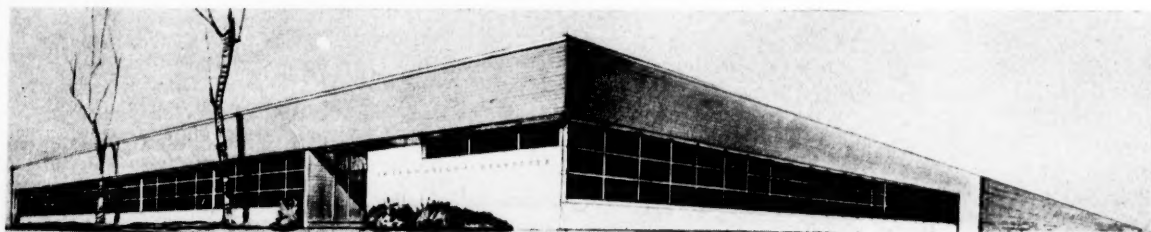
It is not expected that construction work will be far enough along to permit any production in Memphis Works until well into 1947, and it is impossible to estimate when full production will be obtained. Completion of the entire construction job depends upon many factors, most of which are in an uncertain status as of today.

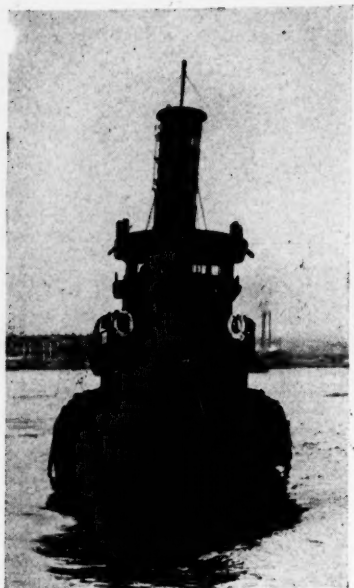
#### Louisville Works

When the International Harvester.  
(Continued on page 160)



*Below—The Baltimore parts depot as it will appear when finished.*





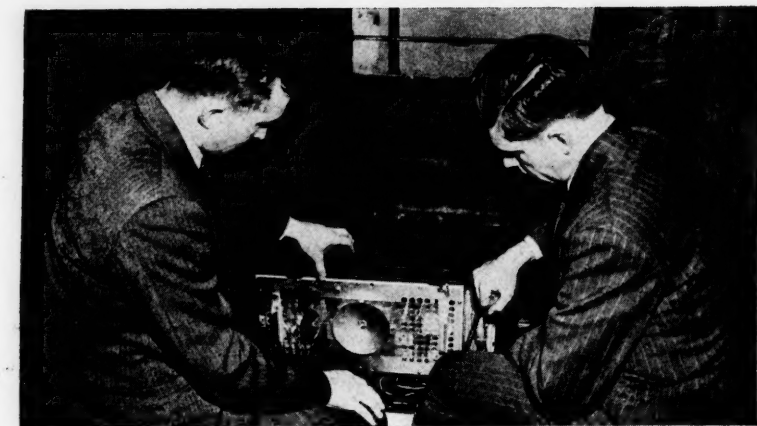
*Above—The tug Baltimore, one of the two B. & O. vessels equipped with the ship-to-shore radio.*

*Below—Capt. Edward A. Rowles, skipper of the Baltimore talking over the new VHF transmitter.*



**A**LREADY a pioneer in development of radio for terminal train control, the Baltimore and Ohio railroad has again taken the lead in wireless communication by installing a ship-to-shore radio for use of its tugs plying the waters of the Baltimore harbor.

The new system was placed in operation several weeks ago, with Baltimore and Ohio officials, including A. S. Hunt, chief engineer of com-



*Above—Baltimore & Ohio engineers J. H. Wallis (left) and L. J. O'Connell, inspect the compact VHF transmitting and receiving unit.*

## First Railroad Tug Radio Installed at Baltimore

munications and signals, and Bendix observers including J. W. Hammond, communication radio general sales manager, watching the successful initial broadcast of what is understood to be the first such installation by an American railroad.

Ship-to-shore, two-way radio of the VHF, or "very high frequency" type is comparatively simple to operate. The skipper of the tug, who in this instance was Capt. Edward A. Rowles, stood at the wheel in the pilot house and lifted a microphone from its hook, saying "Tug Baltimore calling Locust Point," the Baltimore and Ohio railroad's marine terminal in South Baltimore.

Hearing the call through a loud speaker at the other end of the etheral line, the float master, or dispatcher in what is called the barge office at Locust Point, replied "barge office to Tug Baltimore." From then the captain and the dispatcher carried on the conversation that could bring the vessel back to its berth or send it to one of the many local piers to pick up another tow.

W. M. Murphey, superintendent of Baltimore terminals for the railroad, estimates that the ship-to-shore communication system will save at least two hours of operating time daily by eliminating the return trip which in the past, was required to tug headquarters before new orders could be received

by tug captains. Two tugs make up the Baltimore and Ohio's fleet. These are the Baltimore commanded by Captain Rowles, and the Oscar G. Murray. Both are equipped with the new two-way radio.

Very high frequency radio is a "line-of-sight" method of communication. This means its range approximates the distance that can be seen from the actual transmitter to the receiving station. The higher the broadcast station, the longer the range.

Baltimore and Ohio tugboat operations seldom take the vessels more than eight miles from the transmitter. The company's Curtis Bay coal pier is usually the farthest destination. This keeps the three units—the two tug installations and the land station at the barge office—well within the 15 to 30-mile range of the system. Natural static and man-made electrical interference have little effect on VHF reception except near the limits of the broadcast range.

The ship-to-shore installation is not the first venture in radio communication for the Baltimore and Ohio. Very high frequency radio has been in use for a year at one of the railroad's important freight yards and has been found to save both time and money, according to Mr. Hunt.

*(Continued on page 159)*

MANUFACTURERS RECORD FOR



*Above—Grapes piled high on the Welch loading platform at Springdale.*

**T**HE grape has graduated into the realm of big business in the Ozarks country of Southwest Missouri and Northeast Arkansas.

Once grown only for home consumption, the grape now is one of the leading crops of the area and with its increased production has come a number of processing plants, the largest of these being the plant of the Welch Grape Juice Co., at Springdale, Ark.

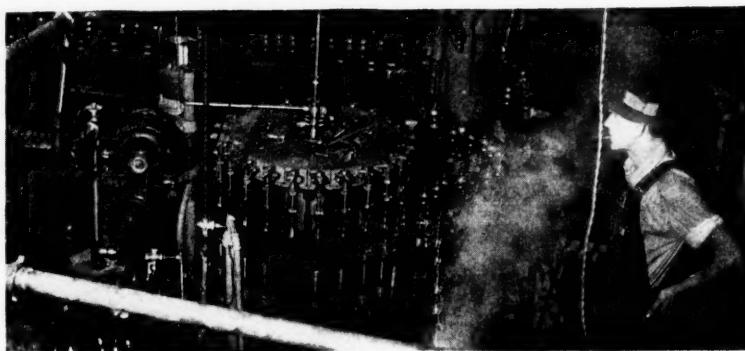
The history of commercial grape growing dates back to 1921 when a far-sighted agricultural agent of the St. Louis-San Francisco Railway (Frisco Lines) learned that the Welch Company was investigating the possibility of a plant in the Southwest.

The Frisco official contacted the officers of Welch and induced them to personally look over the commercial grape-producing possibilities of the Ozarks area. At that time the commercial production of grapes was limited to approximately 150 acres—the output of which went almost wholly to table use. Years before, the Frisco, through its agricultural department, had induced a group of Italian farmers to locate in the area believing they would find the territory strikingly similar to their native land.

The personal investigation by Welch officials was followed by laboratory analyses of the grapes being

*(Continued on page 166)*

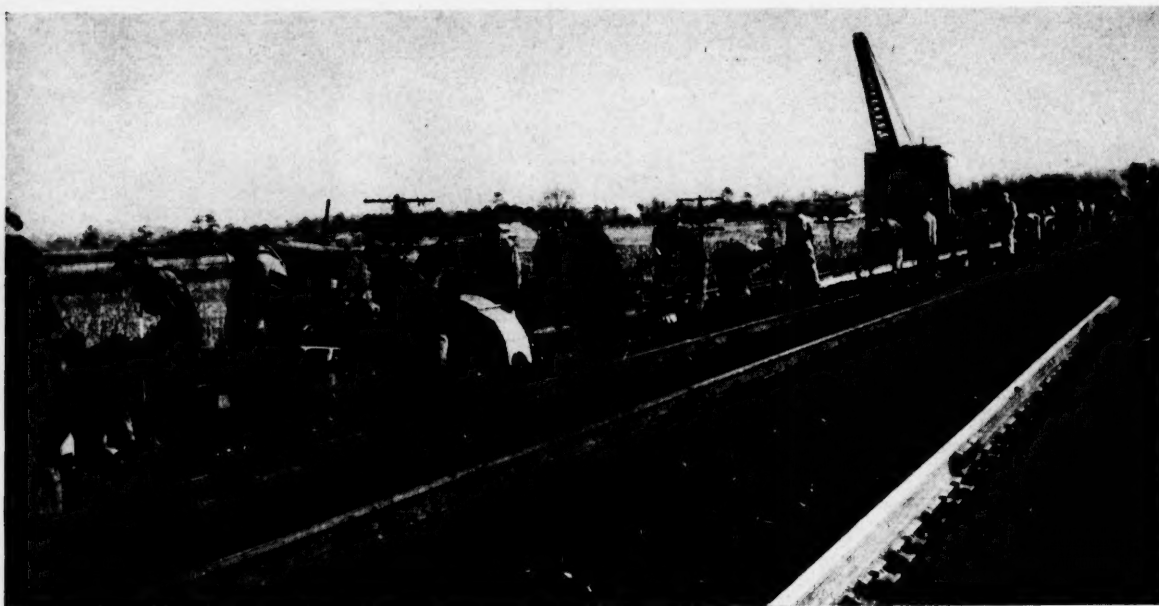
## Ozark Grapes Graduate Into Big Business



*Above—Bottling juice at the Welch plant.*

*Below—Grapes being carried to the processing line.*

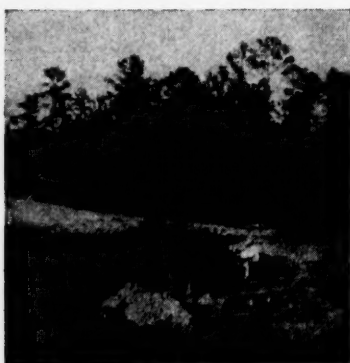




*Above—Mechanized forces of the Atlantic Coast Line relaying 131-pound rail.*

## Atlantic Coast Line Improves, Rehabilitates Rail Routes

*Below—Caterpillar tractor with angle dozer improving right-of-way for power moving machine operation and roadbed improvement on the Atlantic Coast Line.*



*Below—Typical concrete bridge of standard Atlantic Coast Line design consisting of reinforced concrete bents, caps and 18-foot span slabs.*



ATLANTIC Coast Line Railroad Company under leadership of President C. McD. Davis is pushing a multi-million dollar roadbed and track rehabilitation program which last year involved the laying of 165 miles of new 131-pound rail and in 1947 will mean replacement of an additional 350 miles of track with the heavy rail.

According to an estimate by L. S. Jeffords, Atlantic Coast Line chief engineer, the 1947 program will require 1,850,000 cross ties, 710,000 cubic yards of crushed stone ballast and 50,000 cubic yards of washed gravel, in addition to the 350 miles of rail.

The 1946 work embraced 165 miles of new 131-pound rail, 2,100,000 crosstie renewals, 710,000 cubic yards of crushed stone ballast and 50,000 cubic yards of washed gravel. Accessories and the necessary construction forces were available to place 325 miles of rail, but conditions prevented the accomplishment.

Mr. Davis states that authority has been extended and materials ordered for the first segment of the double track signal modernization. This stretch is located between Richmond, Va., and Rocky Mount, N. C. Some of the materials have just been received. Automatic signals between Richmond, Va. and Jacksonville, Fla. will be respaced. Searchlight-type signals will replace present semaphore signals. Installation of Union, Style T-21 hand-throw switch and lock stand with facing-point locks is contemplated and switches within 200 ft. of highway grade crossings.

Routes on which the 131-pound rail is being relaid include the main line between Richmond and Jacksonville and all single-track main line between Jacksonville and Tampa. Passing tracks and other important sidings on the main line are being relaid after the new

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heavy rail releases the 100-pound rail. A large rail yard and cropping plant has been set up in South Rocky Mount, N. C. This plant is equipped with a friction saw and electrically-operated gang drill and straightening press. The 100-pound rail used in the secondary main lines is cropped 18-inch on each end. This eliminates secondary batter as well as hidden defects near the old joint bars not detected by detector cars.

Sequence of the rail laying program includes tie renewal with removal of old ballast where renewals are heavy or the old is foul, followed by a raise of 5 to 6 inches of new crushed granite. The rail laying is followed by finish surfacing, regaging, and application of anchor spikes. All the work, except the rail laying, is done under traffic. The track is usually taken out of service when the rail is actually being laid.

When relaying rail in track where the ties have not been renewed and an initial surface on new rock ballast, the rail gang is preceded by a cribbing gang consisting of 30 laborers, one foreman and one assistant foreman. In addition, two work trains operate in connection with the rail-laying gang, one ahead of it and the other behind it. A gang with the head work train unloads the rail and distributes all other material exactly where needed. The second work train gang picks up all released rail and other material. The loading operations usually keep within  $\frac{1}{2}$  to 1 mile behind the rail laying.

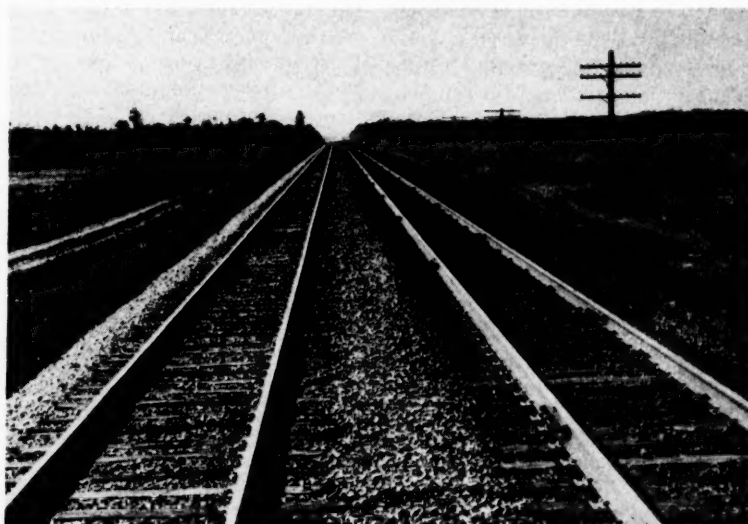
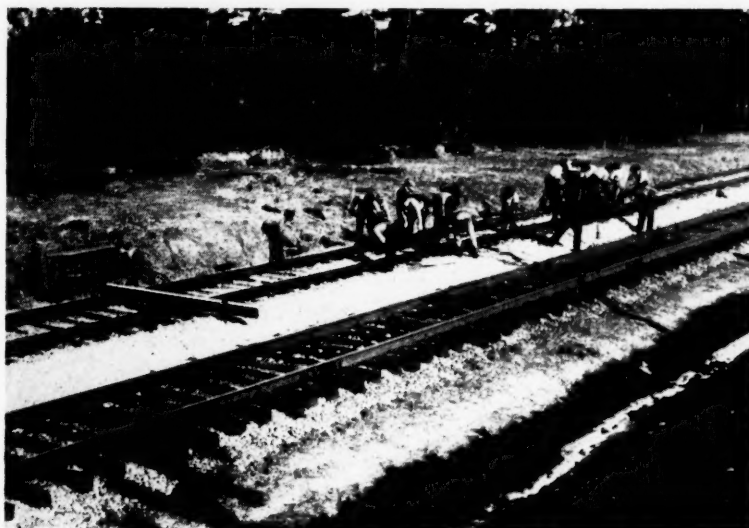
Most of the new rail is being laid by large, completely mechanized rail-laying gangs. The largest of these gangs is in charge of an assistant roadmaster and includes an extra gang foreman, five assistant foremen and 101 laborers. In this total are 12 laborers and an assistant foreman, who follow directly behind the final rail laying operations, tamping ties at the locations of the old continuous joints, and any other swinging ties.

Rehabilitation of Atlantic Coast Line tracks has been in progress for

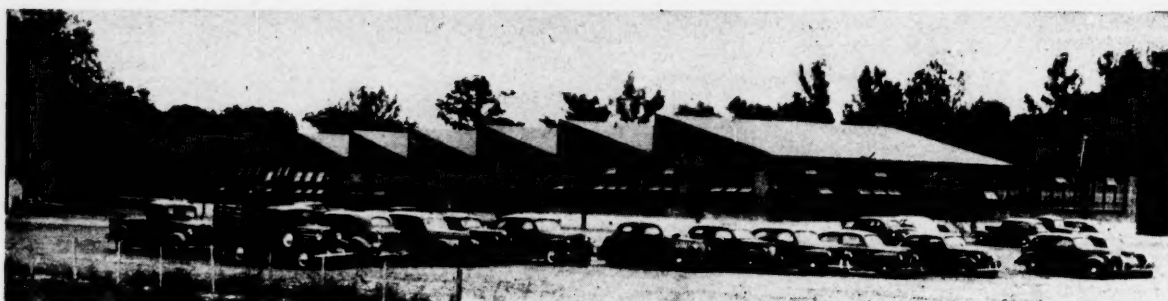
*(Continued on page 158)*



*Above—Mole ballast cleaner in operation on the Coast Line.  
Below—Small extra gang surfacing track with portable tamper.*



*Right—Double track main line complete with new 131-pound rail, creosoted cross-ties and crushed granite ballast.*



## New Brown Shoe Plant in Operation

**H**ARBINGER of the South's rising tide of expansion in the shoe industry was recent dedication of the Brown Shoe Company's new Pocahontas, Ark., factory where production is expected to reach 4,000 pairs of high quality women's casual shoes daily.

One of the most modern shoe factories in the industry, the new plant contains 43,000 square feet and is of brick and steel construction. Cost of the building was \$250,000, toward which Pocahontas citizens contributed \$85,000. Cost of machinery will run the total capital investment to about \$500,000. In designing the factory, Brown officials pointed out that they have constructed 15 new plants in the last 30 years, and in each plant they have added the modern facilities developed since the previous factory was built. As a result, the new Pocahontas plant contains not only the latest in shoe making equipment, but its design is the result of many years' experience in the shoe business.

The plant will specialize in high grade women's shoes. So complete and modern is the factory's equipment that Brown officials have decided to make top styles there that are ordinarily produced only at the company's oldest and most efficiently established factories. Seven hundred Pocahontas residents will be employed by this new enterprise.

An unusual feature of the new building is that a large hill adjacent to the town was cut down and moved to the plant site to provide a base for the structure. It has modern cooling equipment, sky lights which are specially arranged for maximum daytime illumination, and heat-in-

sulating glass in the windows. The 225 trained employees who have been working at the company's pilot plant at Pocahontas will provide the nucleus for the expanded working force.

The building of the plant was materially aided by the civic enterprise of the town's citizens who worked closely with Brown Shoe Company officials in selecting the factory site and assisting them in working out details of its completion. The plant will be in operation in the near future, depending on delivery of several minor pieces of machinery.

Dedication of the Pocahontas factory marks another milestone in the steady growth of Brown Shoe Company throughout the South, and emphasizes the important role which that organization has played in the expansion of Southern shoe industries over the past twenty-five years. With a large proportion of its present 23 factories in Southern Missouri, Tennessee and Arkansas, this large organization is one of the South's most progressive pioneers in shoe making.

Brown Shoe Company is planning to open two additional large and modern factories in Tennessee in the near future, one at Savannah, the other at Dyer. These plants will embody the most advanced types of shoe machinery, as well as latest developments in factory design.

These new facilities emphasize the steady and continuous expansion of Brown Shoe Company from a small organization to its present position as the third largest shoe company in the country. Born in 1878 Brown Shoe Co., Inc., today operates 23

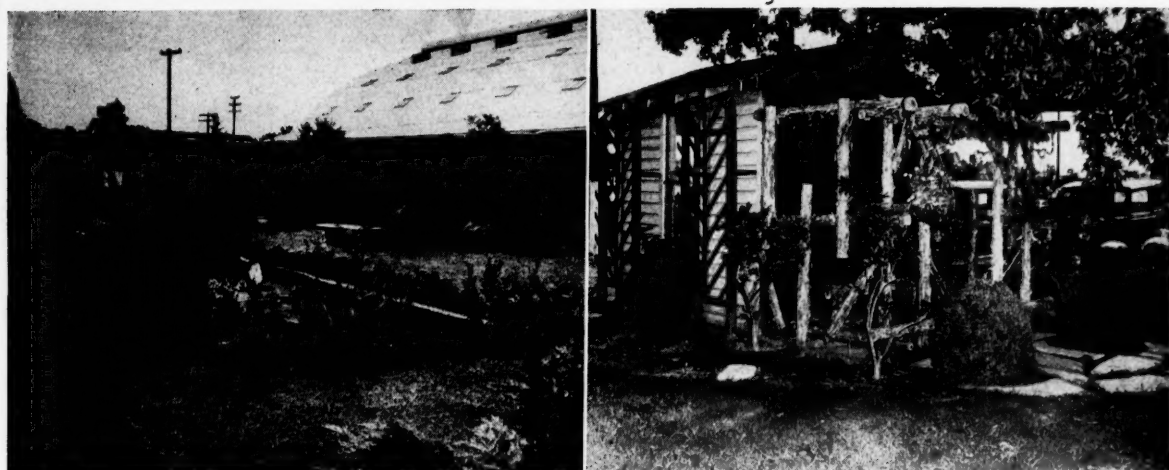
factories, two tanneries, a central sole leather plant, a carton factory and the "White House" devoted to carrying in-stock merchandise and the general offices.

An idea of the size of the business may be had from the fact that a factory schedule of 70,000 pairs of shoes a day, or 135 pairs a minute, requires the skins and hides of 19,850 animals. These shoes, set one behind the other, heel to toe, would make a line eighteen miles in length.

Brown Shoe Company had its inception in 1878 as Bryan-Brown and Co. Three years later being incorporated under Missouri laws as Bryan-Brown Shoe Co., with a capitalization of \$60,000. This change was made in order to give valued employees an opportunity to share in the business. By 1885 the annual sales had reached a half million dollars. Name of the organization was changed to Brown Desnoyer Shoe Co. in 1885, when Mr. Bryan retired from the business due to illness. The capitalization was increased to \$150,000, but business developed so rapidly that the capital stock was doubled shortly thereafter and the plant moved to larger quarters. In 1893 when shipments amounted to \$1,750,000 there was another change in name, this time to The Brown Shoe Co. The business grew steadily, necessitating more factories and greater capitalization. In 1912 the company was reorganized and the name became Brown Shoe Company, Inc.

During this half century of progress there have been but two men at the helm. George Warren Brown was president from the time of its

(Continued on page 151)



*Above—Scenes from the industrial garden of Rheem Manufacturing Co., Birmingham, Ala. At the right is a utility shed converted into a rustic bower. The view at the left shows a miniature lake which is part of the plant.*

## Rheem's Industrial Garden

by  
Depew Meredith

**I**N the good old days a factory had to look like a factory. It had to have long rows of grimy windows and huge smoke-stacks so it would look busy when it was engraved on a letterhead.

A new concept of industrial buildings has been creeping into the nation, but it remained for Rheem Manufacturing Co., at Birmingham, to put the real Southern touch to a factory.

Here, the workmen cross a park from the gate to the buildings of the

plant. Rock gardens and miniature lakes set off the beauty of well kept lawns.

So well have the grounds been developed, that the entire production area has been declared a bird sanctuary.

It was not always like this at Rheem. When the company first moved South, they bought a long

abandoned radiator manufacturing plant and it was not a pretty sight.

Years of neglect had allowed weeds to flourish. Old lumber was scattered helter-skelter about the yard. Industrial dumps were everywhere.

One of the first acts of W. E. Curran, then plant manager at Birmingham, now a vice president of the company, was to survey the property for its possible usefulness. He noticed that the industrial wastes from the foundries of the radiator company were heavy with iron.

Scrap metal was scarce at this early point in the war.

Curran brought in a large mechanical shovel and a crew of men. The shovel dug deep into the yard and the metal was screen separated from the earth. It was an efficient operation that yielded no small amount of metal for the war effort and no little profit to Rheem.

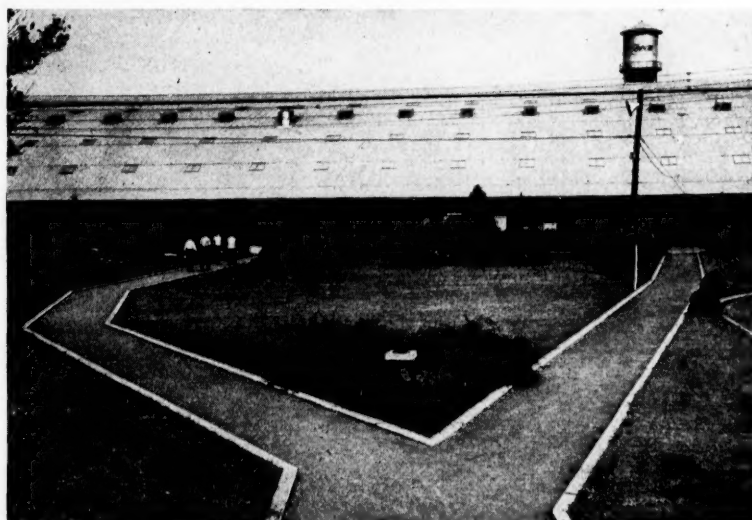
But it left great mounds of dirt and the earth looked pitted, uneven and bare. When it rained, great puddles appeared, and a man would sink ankle-deep in the muck and mud.

For the first few years of its operation, the company was too busy to worry about the appearance of the yard. There were shells, shell casings and aircraft parts to be turned out and the company was doing its bit.

With the easing of the production strain toward the end of the war, however, the unkempt appearance of the place began to worry the man-

*(Continued on page 149)*

*Below—This spacious lawn was developed from what was once a dump for foundry waste at the Birmingham plant.*

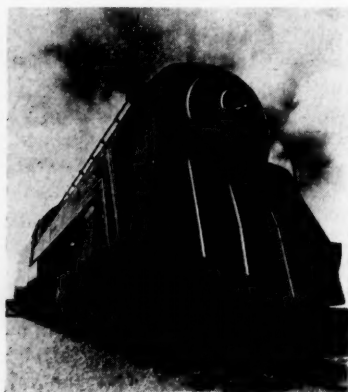




### New B. & O. Streamliner Being Placed in Service

**M**ODERN streamlined railroad coach travel is making its initial postwar appearance on the Baltimore - Washington - Cincinnati route this month when the Baltimore and Ohio places its bullet-nosed, articulated five-car "Cincinnatian" in operation.

Scheduled for twelve and one-half hour daylight runs on the 550 miles



The "Cincinnatian"

between Maryland's metropolis, the Nation's Capital and the Ohio city for which it is named, the new train features both speed and comfort, particularly in the "sleepy hollow" seats designed to conform with the sitting habits of a large proportion of the traveling public.

Three of the new streamliner's cars are equipped as coaches. Their interior color schemes harmonize

(Continued on page 150)

Above—Powerful Kansas City Southern diesel freight locomotive.

### Santa Fe Adds Six Diesel Locomotives

**S**ANTA FE RAILWAY has added six diesel locomotives to its power pool thus raising the number of such units to 388 for use on the passenger, freight and terminal switching service. Engines of the Super Chief, Chief and other high speed passenger trains are drawn from this power pool of General Motors locomotive units.

Santa Fe Skyway, Inc., contract air freight affiliate of the Santa Fe Railway, is taking delivery of the first of four modified DC-4 cargo planes. These will be capable of carrying 20,000 pound pay loads, and their conversion job is the most extensive done to date on exclusive air freight equipment.

The planes are equipped with four latest type Pratt & Whitney engines, each capable of generating 1450 horsepower at take off. Radio and flight equipment includes automatic direction finder units, two way high frequency communications and two way very high frequency transmission and receiving units, and auxiliary range receiver used in conjunction with a fixed loop antenna for anti-static purposes and a glide path and runway localizer receivers of very high frequency. The plane is insulated throughout with XAA fiberglass and in addition the cargo space is lined with white V-Board, a fiberglass composition designed to

(Continued on page 150)

New 6,000-horsepower Santa Fe diesel-electric locomotives.

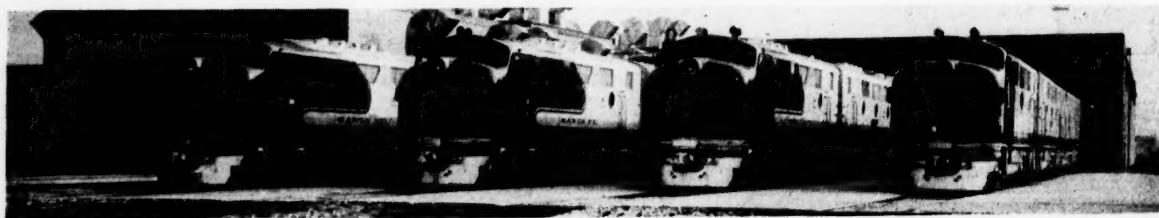
### Kansas City Southern Puts Powerful Engine in Operation

**A**N 8,000-horsepower diesel-electric freight locomotive understood to be the largest and most powerful ever built was placed in service by the Kansas City Southern Lines recently. A \$7,000,000 power and equipment program is scheduled for completion by the middle of 1947, when the Kansas City Southern Railway will complete its fiftieth year of through service between Kansas City and the Gulf of Mexico at Port Arthur, Texas.

Major improvements to Kansas City Southern properties in the past several years will be climaxed about mid-1947 when an impressive array of new, powerful diesel-electric freight and passenger locomotives and the "last word" in streamlined passenger equipment go into service.

Vanguard of the line's postwar rolling stock expansion is the 8,000-horsepower "world's largest" diesel-electric locomotive recently placed in fast freight service between Pittsburgh, Kans. and DeQueen, Ark. Upon delivery of two additional 2,000 horsepower units, now being built, this big engine will be divided into two locomotives of 6,000 horsepower each.

Scheduled for delivery in 1947 are also five 6,000 horsepower diesel-electric freight locomotives and two 3,000 horsepower diesel-electric pas-





*Above—Modern plant now being completed by Crown Cork & Seal Co., of Baltimore, for production of bottling machinery.*

senger locomotives. Four 1,000 horsepower switching locomotives have already been received and eight more are part of the program.

Besides additional diesel-electric passenger and freight locomotives, the Kansas City Southern has coming up for its "Southern Belle" trains streamlined aluminum equipment of the latest type, including coaches with spacious lounges, dining cars with a novel table arrangement, roomette sleepers, tavern-lounge cars and mail and baggage cars each provided with a dormitory for dining car crews.

Some of the streamlined, air-conditioned equipment built for the "Southern Belle" trains in 1940 will be reconditioned and used in the line's "Flying Crow" service between Kansas City and New Orleans and between Kansas City and Port Arthur. These purchases of new power and equipment approximate \$7,000,000.

The Kansas City Southern was one of the first roads to experiment with and to adopt the use of the radiotelephone on engines, cabooses and in yards and wayside stations. Stations at intervals of thirty and forty miles between Kansas City and Shreveport, La., are equipped with radiotelephonic equipment, which affords all around communication between such stations and yards and radio-equipped engines and cabooses. Radio equipment is being installed in all of the new locomotives and it is planned to extend this means of communication to stations and trains on that part of the line between Shreveport and New Orleans next year.

Radio is not used for the dispatching of trains, but the conventional telephone is rapidly supplanting the historic Morse code for train orders. With new dispatcher telephone circuits being installed, trains on all but about 200 miles of the entire

K. C. S. system are being dispatched in this way. In 1947, similar circuits are to be installed on the remaining section of the line, between Watts, Okla. and DeQueen, Ark. Time saving—a chief factor in railroading—is the primary advantage of telephonic dispatching.

Less glamorous than streamlined locomotives and passenger equipment, but just as essential, are the freight cars recently received and now being built for the road. In 1946 the K. C. S. received 200 new 70-ton hopper cars, 50 of which are covered for use in transporting lime, cement, soda ash, etc. In addition, 100 special pulpwood cars are being built and bids have been requested on 800 new box cars.

Faster, heavier trains require heavier rail, straighter track and smoother roadbed to be effective in meeting ever-increasing competition. For more than a decade Kansas City Southern Lines have been following a rail relaying program in anticipation of present-day needs. New rail laid on the system in 1946 cost approximately \$650,000. The heaviest rail—127 pounds to the yard—extends between Kansas City and DeQueen, Ark., a distance of 432 miles. This includes the mountainous section of the railway. Between DeQueen and Shreveport, La.—128 miles—new 112 pound rail has been laid, while 100-pound and 112-pound weights are being laid on the southern districts, where the terrain is essentially level. Today it costs about \$20,000 per mile to lay 127 pound rail, which does not include the ties. In 1947 the K. C. S. plans to spend \$1,200,000 for new 112-pound rails.

Quick movement of freight depends, to a large extent, upon proper yard facilities and organizations. Major yard improvements on the K. C. S. during the past year were at Kansas City, where enlarging and

revamping of tracks, yard and terminal facilities in connection with the joint agency operated by the Southern and Milwaukee roads aggregated \$1,500,000. This work, started in 1945, also included the enlargement of the roundhouse and turntable to accommodate locomotives increasing in size and number, facilities to service new diesel power, new yard offices, employee accommodations and modern lighting and communicating systems extending over the entire area.

Another big yard improvement on the line is under way at Baton Rouge, La., where some of the largest oil refining, chemical, synthetic rubber and aluminum plants are located. In addition to about \$150,000 being spent for larger yards and new mechanical facilities, the railway has acquired about 200 acres of adjoining land there for industrial development. Similar modernization of yards and mechanical facilities for servicing and repairing locomotives and cars is planned for New Orleans, estimated to cost about about \$200,000.

To service and repair its growing fleet of diesel-electric locomotives, the K. C. S. is building a new shop at Pittsburg, Kan. This will be completed in 1947, at a cost of about \$300,000.

Under way near Spiro, Okla., is another two-million-dollar project, expected to solve a serious flood problem that has plagued the line for years, where it crosses and parallels for several miles the Arkansas River. Most of these improvements, which include rebuilding and strengthening piers, lengthening the

*(Continued on page 149)*



IT WAS from St. Louis on May 16, 1804, that the famous Lewis and Clark Expedition started on the eventful journey which opened up the resources of the great Northwest.

Since 1857, the First National Bank in St. Louis and its antecedents have served business and industry in St. Louis and its wide trade territory. Today it is Missouri's largest banking institution and has correspondents throughout the United States and in many foreign countries.

We shall be glad to discuss with you your financial requirements.

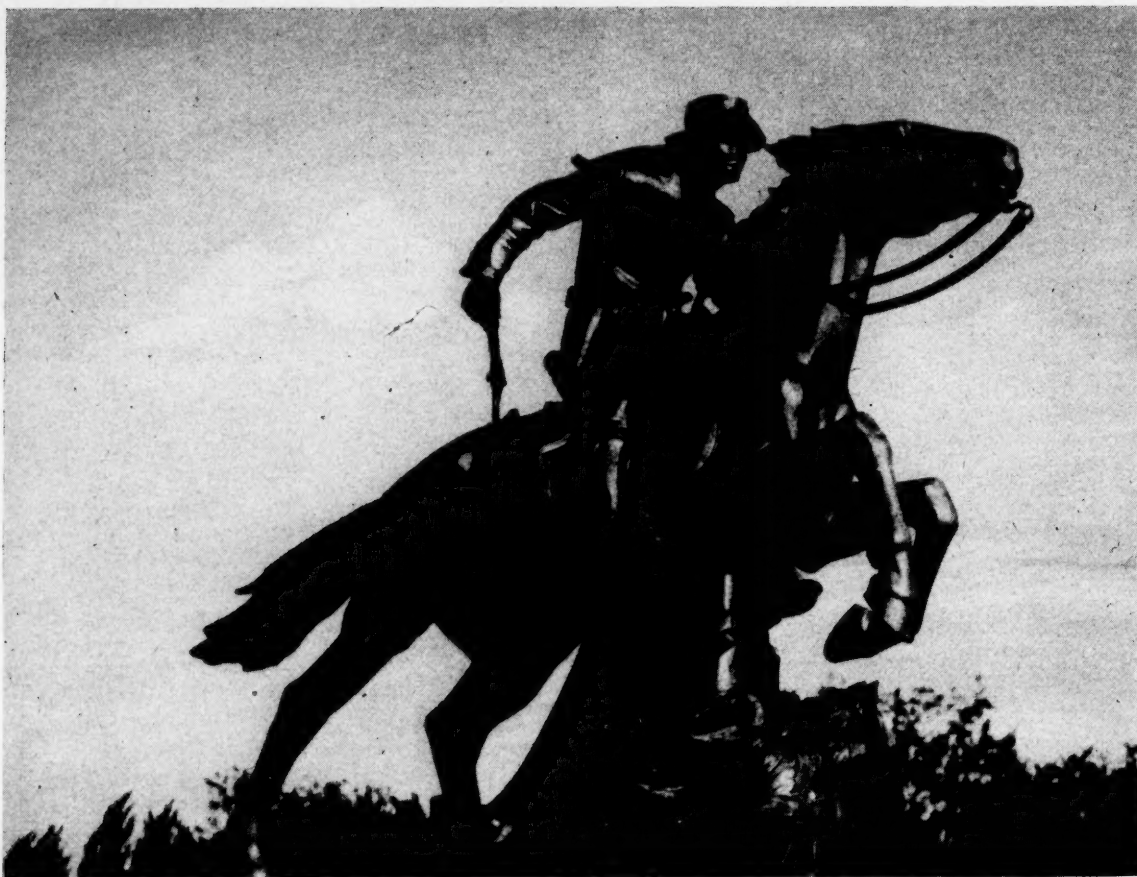
## FIRST NATIONAL BANK IN ST. LOUIS

Broadway • Locust • Olive

*Member Federal Deposit Insurance Corporation*

A black and white photograph capturing a serene moment between a man and a child. They are positioned on a riverbank, looking across a wide river towards a distant town. The man, on the right, stands and holds a branch of a weeping willow tree that hangs down from the top of the frame. He wears a wide-brimmed straw hat, a plaid shirt, and dark trousers. A child, seen from behind, sits on the ground in the foreground, wearing a striped shirt and a similar straw hat. The river flows between them and the town in the distance. The sky is bright, and the overall mood is peaceful and contemplative.

*Missouri*



Memorial to Pony Express, which started from St. Joseph, Mo.

**MISSOURI** MAY well be called the hub state of the nation—the country's cross-roads of travel and trade. This culmination of more than a century of progress arises not alone from its near-center location, but also from soundly conceived development and unremitting enterprise.

With a foundation made up of pioneers from Kentucky, Virginia, Maryland, Tennessee and the Carolinas, Missouri early became a lodestone that drew to it enterprising peoples of many regions and many races. Today it exemplifies the great American melting pot at its best.

The original conservatism adopted from the deep South still keynotes the underlying vein of thought and activity. Yet, from this has developed an outgrowth that is purely Missourian. The virile voice of the pioneer still speaks in the life and habits of present-day Missouri.

This spirit is still to be heard also in the many picturesque place names to be found in the state. There is, for instance, an Owl's Bend, a Pumpkin Center, Half Way, Eight Mile, Ten Mile, Seventy Six and Advance; Hope, Wisdom, Worth and Charity; Blue Eye, Birdsong, Deepwater, Day and Dawn; Cyclone, Hurricane, Lonejack and Minimum; Liberal, Radical, Sleeper and Pioneer; Romance and Joy, and many others of colorful ilk. The very diversity of their meanings bespeaks the rich variety of character

which had a hand in the state's early molding.

Discovered first by the Spanish, and settled first in a minor way by the French, the real story of this pivotal state of the union began when the United States in 1803 purchased from France for \$15 million the vast Louisiana Territory consisting of nearly a million square miles. Missouri was part of that great region which reached from the Gulf of Mexico to the Canadian border. In 1812, when Louisiana was admitted as the 17th state of the union, all the remainder of the region became the Missouri Territory which was then launched upon its future career as a mother of states. Thereafter, with the inclusion of Missouri itself, twelve states, complete or nearly so, were carved from this territory: Arkansas, Missouri, North Dakota, South Dakota, Nebraska, Kansas, Montana, Wyoming and Colorado. It should be remembered that Louisiana too was originally part of the territory, making thirteen states in all.

In the year following the Louisiana Purchase, two young Virginians, Meriwether Lewis and William Clark, both captains in the United States Army, were appointed by President Thomas Jefferson to explore the territory. Their expedition started from St. Louis, then a thriving fur-trading post, and extended all the way to the northwest Pacific coast.

Even before the Lewis-Clark party had returned from their expedition, another explorer, Zebulon M.

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Pike, was sent by General James Wilkinson, then commander of the United States Army, on an exploration tour through Missouri and into the great Southwest. During this expedition, Pike's Peak was discovered and named after the party's leader. Thereafter the party explored territory now embraced by the states of Texas and New Mexico.

As though anticipating inevitable annexation of the Louisiana Territory by the United States, numbers of Kentuckians, Tennesseans, and other Southern pioneers had migrated to Missouri even before the Louisiana purchase took place. Glowing reports brought back by Lewis and Clark and Pike spurred immigration to a still higher pitch, and from that time on, many from north of the Ohio River began joining the thousands who were flocking in from Southern states.

Among these latter was Daniel Boone who earlier had gone from his North Carolina home into Kentucky and played an important role in the settlement of the Blue Grass State. In Missouri he spent the last days of a picturesque and useful career, the esteem in which he was held by Missourians being reflected in the naming of a county in his honor.

Another pioneer from Kentucky, Christopher Carson, best known to tradition as Kit Carson, also holds a place in Missouri's hall of colorful fame. One year old when his father brought him from Kentucky, he grew up on the Missouri frontier. There, the lure of wagon-train danger and adventure captured his fancy and from young manhood onward he spent his life in the wide open spaces, winding up his career as probably the most famous scout and guide in American history.

These are only two of many men of character and fame adopted or produced by Missouri. No state is richer in famous names. These range from a president and supreme army commanders to world-famous writers; from illustrious statesmen to artists of note. Boone and Carson, however, filled particular spots in American history, rarely if ever approached by any others. Their careers, moreover, came at a time when they meant much in publicizing the possibilities of a region that was destined to rank high in the nation.

Growth from the time of Boone and Carson was rapid. Population of the state in 1820 was 60,000. By 1830 it had jumped to 140,000. In 1840 it was 324,000; in 1850, 682,000; 1870, 1,721,295; 1944, 3,589,538; 1945, 3,773,359.

Property values likewise made swift gains. In 1860, taxable wealth was \$296 million; in 1870, \$504 million; 1880, \$527 million; 1890, \$756 million; 1900, \$1,001 million; 1944, \$4,126 million.

Nature contributed its part to progress. Missouri's countryside is as varied as its people. Its 69,420 square miles embrace three main districts: upland plains and prairies in the northern and western part; the Ozark Plateau, comprising most of the southern and southwestern half of the state; and the bottomlands in the southeast bordering on the Mississippi River.

The upland prairie, taking in all that portion of the state between the Mississippi and Missouri Rivers, as well as a large tract bordering on Kansas, is level and

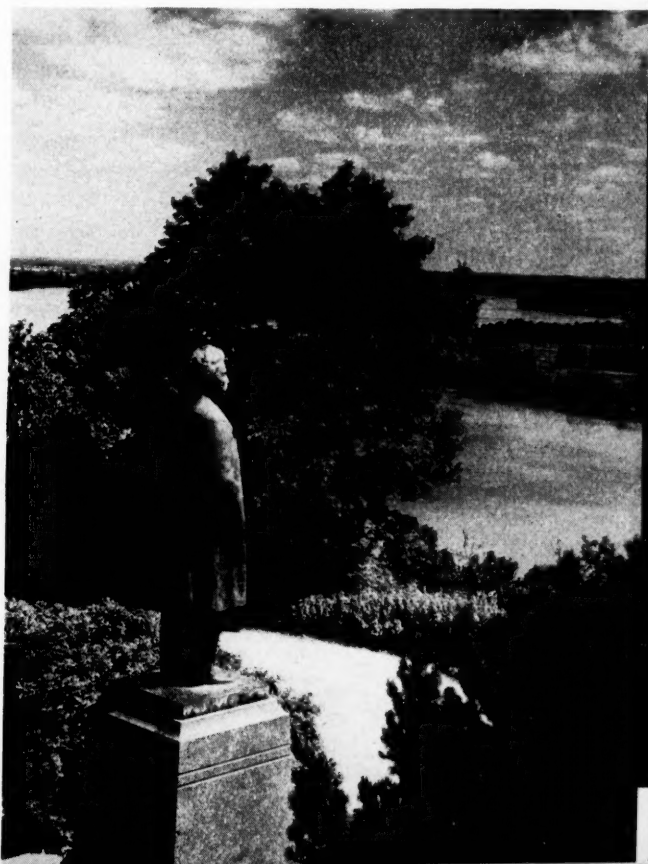
interlaced by streams lined with timber. The Ozark Plateau rises gradually from the southern tip of Illinois and continues on an upslope into Arkansas and Oklahoma. This region is a series of rounded hills and deep valleys, ruggedly scenic in large sectors. The southeastern lowlands were once an old flood plain of the Mississippi River. The surface is interspersed with numerous cypress marshes, lakes and lagoons.

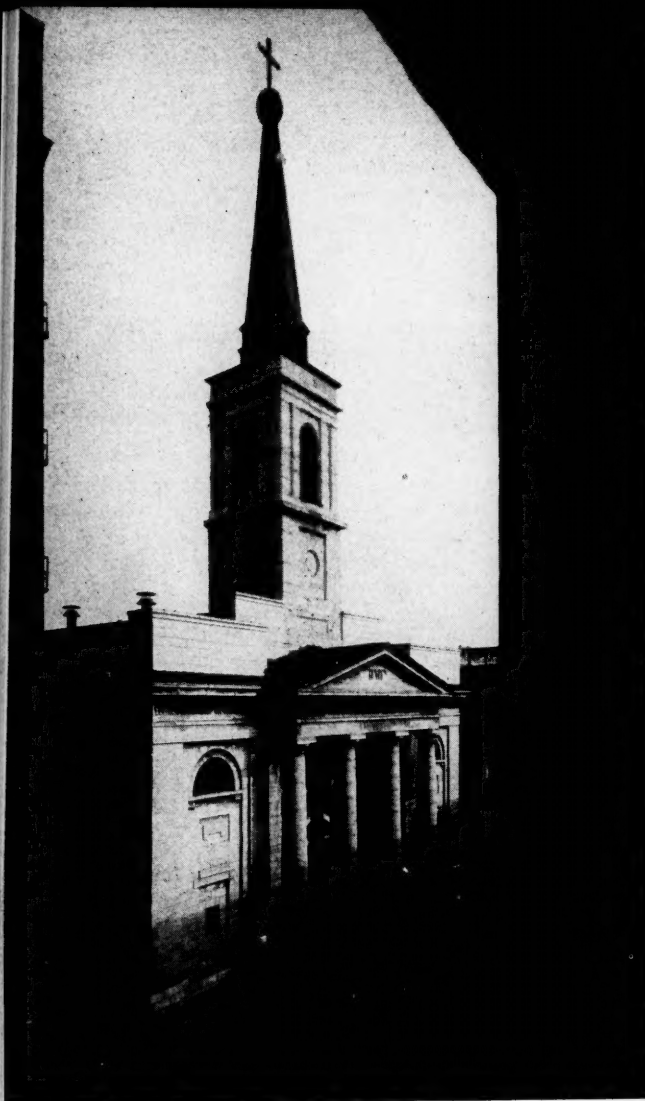
In general the state is a composite of rich delta farm land, bluegrass pasturage, rolling orchards, and prairies checkered with cotton and grain. Here and there are orifices of mines, and towering bluffs of building stone and asphalt.

Throughout, it is a network of magnificent streams and gushing springs. Its eastern borders are drained by the Mississippi, the Father of Waters. The mighty Missouri rolls down from high in the Great Plains bringing with it alluvial deposits to constantly re-enrich Missouri lands. There are other rivers less mighty but of untold value: the turbulent Current River, falling almost seven feet to the mile; the Black River, black in name only, with its smooth, blue-green current a favorite haunt of fishermen; the scenic, cliff-bound Gasconade; the St. Francis and White, flowing into the Mississippi; the Grand, Chariton, Platte, Nishnabotna, Modaway, Big Sniabar, Blue, Lamine and Osage, tributaries of the Missouri. All afford power for busy factories or pleasant relaxation for vacationists.

Springs like those of Missouri are hard to find elsewhere. Some start fullgrown rivers. Many arise within awe-inspiring caves. Others spring from high

Statue to Mark Twain, who spent his boyhood at Hannibal, Mo.





Catholic Cathedral at St. Louis.

limestone bluffs. Missouri truly is blessed with its share, and more, of these flowing bounties of nature.

Missouri has a generally mild and pleasing climate throughout most of the year. In spring, time of dogwood and crabapple blossoming, the outdoors is particularly alluring. As the tide of midsummer rises and ebbs, days may take on high temperatures, usually however, subsiding into balmy comfort with the setting of the sun. Autumns are wonderful in the Show Me State, with Indian Summer dressed in scarlet, purple and gold, showing at its best. Frosts may be expected in late fall, and some snow and ice during the winter months. These, Missourians would be loath to forego, since they mean the difference between a good and mediocre crop of wheat.

Rainfall ranges from 35 inches annually in the north to 50 inches in the south. Mean rainfall average is 36.7 inches. Precipitation is well distributed throughout the year, usually heaviest in the spring. Since the day it became the 24th of the United States, August 10, 1821, few severe droughts have been recorded, and of these even fewer were of statewide ex-

tent. The wettest year on record, 1927, brought 55.06 inches of rain; the driest year, 1901, had 25.28 inches.

Ranking eighteenth in size among the states, Missouri gets its name from a tribe of Sioux Indians that was called the "Missouris." The Hawthorne is the state flower, and the Blue Bird is the official state bird. "Salus Populi Suprema Lex Esto" (Let the Welfare of the People Be the Supreme Law) is the state motto.

The state is divided into four physiographic provinces: the Northern Glacial and Loessial region includes the land generally north of the Missouri River; the Western Prairie region, between Kansas City and Joplin, has gently rolling land; the Ozark Highland region, south of the Missouri River, is rough, hilly and composed of a deeply dissected plateau country; the Southeast Lowlands region is composed of alluvial lowlands which are very fertile.

The age of rocks of Missouri dates back to the Archaean, Paleozoic, and Cenozoic eras. A wide variety of rock is found. Those of the Ozark region are largely limestone. There are areas of slates, igneous rocks, and shales scattered throughout the state. The glacial material is largely sandy clay.

Missouri embraces parts of four drainage basins of the United States. These are the Upper Mississippi, the Lower Mississippi, the Missouri River, and Arkansas River basins. Each of these larger basins is, in turn, divided into major and minor watersheds. The Upper Mississippi basin is divided into five smaller basins, and drains the eastern portion of the Missouri Glacial region. The Lower Mississippi basin is divided into twenty-one smaller basins, and drains the southern part of the Ozark Highlands and the Southeast Lowlands. The Missouri River basin drains the western part of the Glacial region, the eastern part of the Western Prairie region, and the northern portion of the Ozark Highlands, and is divided into twenty-five smaller basins. The Arkansas River basin drains the southwestern part of the state and includes as its tributaries Spring and Elk Rivers.

The state has an abundant supply of water, available for industrial, commercial and domestic use as well as for boating, fishing, swimming and other recreational purposes. The ground waters fall into five provinces.

The first of these includes most of the Ozark region and covers over half the state. In this province much of the water is obtained from wells penetrating solid rock. These wells have good capacity, yielding from 150 to 600 gallons per minute.

The second province covers the Southeast Lowlands, with many wells of capacity up to 1,000 gallons per minute and with water found at unusually shallow depths, generally less than 150 feet.

The third province covers the state's northern section, principally north of the Missouri River. While not as productive as other provinces, some rather high capacity wells are obtained from glacial channels which contain as much as 300 to 400 feet of sand and gravel. These glacial waters usually have a temperature of less than 60 degrees and are soft. Some, however, may contain considerable iron.

Province four is the area south of Kansas City and

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the Missouri River, in the west central part of the state. This one is similar to the one preceding in that mineralized waters are obtainable from rock formations.

The fifth province takes in St. Louis and surrounding territory. Yields of water are here available from rock formations. Along the western edge of the St. Peter sandstone in this province 50 gallons of water per minute is obtainable at depths of from 500 to 1,000 feet.

Wells of extremely large capacity may be expected in the alluvium of the Missouri and Mississippi Rivers where good sand and gravel deposits occur beneath the wide flood plains.

The well-known expression—"I'm from Missouri"—is attributed to Willard Duncan Vandiver, 1854-1932, while a representative to Congress from Missouri and a member of the House committee on naval affairs. In a speech at a naval banquet in Philadelphia in 1899, he declared:

"I come from a state that raises corn and cotton and cockleburs and Democrats, and frothy eloquence neither convinces nor satisfies me. I am from Missouri. You have got to show me."

The expression was used as a slogan during the presidential campaign of 1912 when Champ Clark of Missouri was a Democratic candidate.

Cosmopolitan as it is, and varied as to topography and natural resources, it is but natural that the state's economy should have developed an outstanding diversity. This natural trend has been aided by human purpose and endeavor. Ask any Missourian in what sphere or what commodity his state leads and he will answer that aim is set at the top spot for all, that there is little gain in being first in a few categories and low or mediocre in many. The purpose of this goal is being achieved. Missouri has been officially recorded in the nation's capitol as the state that leads all others in the average of ratings in all categories. There are some firsts to which it can claim ownership, and these will become apparent as the state's story of manufacture, agriculture and other industries unfolds; but in these the Missourian is interested only so far as they contribute to the overall goal.

Diversified excellence is that aim and it is self-revealing in the storehouse of raw materials and the volume of production that have been converted from vast acreages of fertile lands, flourishing forests and rich mineral deposits. It is self-revealing in the numberless humming factories and busy marts that carry the results of this conversion into the homes and lives of millions of Missourians and Americans.

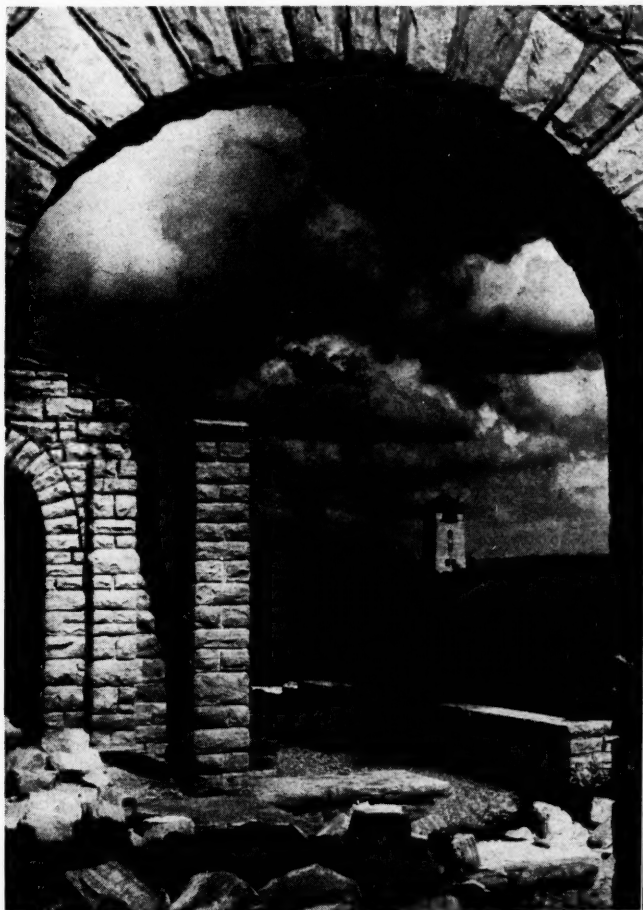
Though it calls itself the Show Me State, in this respect it has been far more showing than shown. Missouri has a prideful record for getting things started and done. In a measure it has pointed out for its sister states the way to prosperity and profit.

In manufacturing, agriculture, utilization of forest and mineral resources; in transportation and power-production; in government, education and recreational development, in all these Missouri may be displayed as an outstanding example of progress, and each of these as they exist in the state today, will be examined in turn in this feature issue.



Daniel Boone House.

Through the arch of ruins of the Hahatonka Castle.

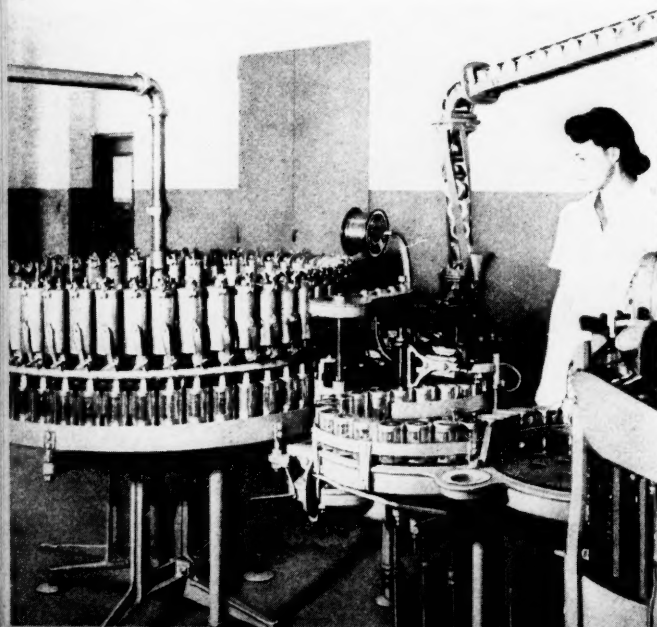




A large chemical plant, one of 40 such in Missouri.

## MANUFACTURING

Filling machinery in a Missouri canned milk plant.



Manufacturing leads Missouri's economy in the dollar value of its production, and holds promise of continuing to do so in the future.

Owing to the variety and abundance of its natural resources and its strategic location for serving the nation, transition from an agricultural to industrial status began earlier than that of most of its sister states.

Being the approximate geographical and population center of the country, and long favored by both natural and man-made transportation facilities, it is only natural that the state should have become marked out as an excellent marketing and distributing center. This furnished early stimulus to widespread processing of local raw materials for use at home and shipment interstate and abroad.

The growth in processing activity is illustrated in an interesting manner through analysis of population trends that held sway during the past century.

The period, 1840 to 1860, saw rural population still growing at a rapid rate, but tapering off in comparison with influx of people to population centers. There were, even then, many towns, some of fair size and of goodly trading importance. St. Louis, the largest, attained a population of somewhat over 160,000 in 1860 and was growing at an exceedingly rapid rate.

In the following period, 1860 to 1890, rural population continued to grow, but at a much slower rate than urban. In that period other towns became cities with gains of 100 to 600 per cent in population. During that period also, Missouri developed 29 cities with

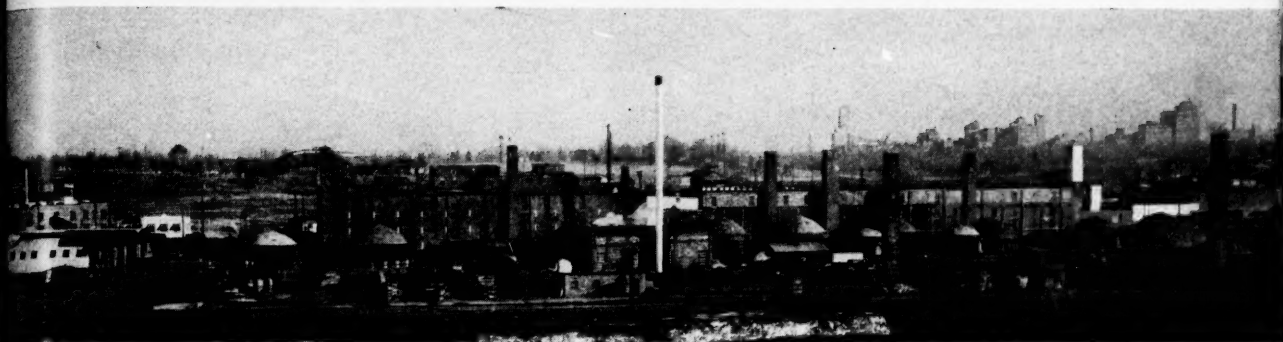
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St. Louis sewer pipe plant.

5,000 or over population, with urban increase at the end of the period at the rate of 32 per cent against rural 8 per cent.

By 1900, 46 per cent of all Missourians lived in towns, 54 per cent in the country. Equilibrium between town and farm life had almost been attained. Ten years later equilibrium had been passed and the scales tipped in the other direction. In 1910 towns in Missouri had 53 per cent of the state's population. From then on the trend did not reverse. Missouri farms continued to turn out a giant share of the nation's food and feed and chemurgical products, but to an even greater extent increasing numbers of workers in mills and factories augmented the country's store of manufactured commodities.

If fur processing and shipment are not to be considered within the scope of processing industry, lead smelting was probably the first manufacturing activity in Missouri. As early as 1798 it is recorded that an improved lead smelter was set up by Moses Austin, historically known enterpriser and pioneer who went from Virginia to Missouri and later into the South-

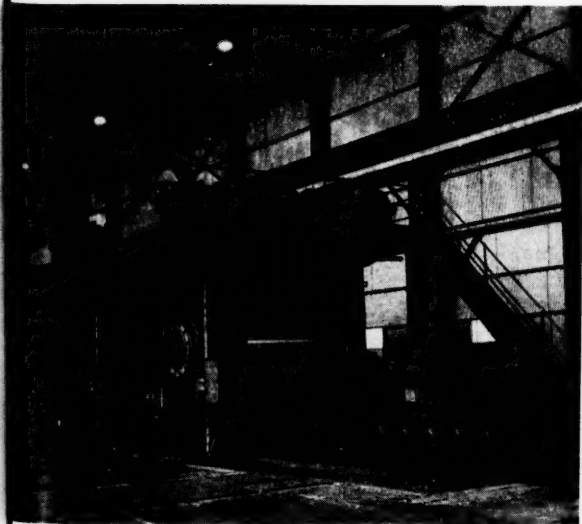
west where he was accorded the title Father of Texas. His first smelter undertaking was carried out at a point then called Mine-a-Breton in the vicinity of Ste. Genevieve. In 1803, together with other associates, he established a second and more important lead smelting plant at Herculaneum in Jefferson County. There shot was manufactured in towers built on high bluffs and bar lead was shipped not only to American manufacturing centers but also abroad to foreign countries.

The fur industry should not be overlooked when considering Missouri's manufacturing progress. This lucrative business began early in the region's development and furnished much of the wealth upon which was erected its later manufacturing structure. It also paved the way for opening up the Missouri and Mississippi Rivers as channels of commerce along which much of Missouri's manufactured production was distributed prior to the advent of railroads. Fur traders were enterprisers of the most daring type who pushed their explorations continually into uncharted regions, blazing trails that otherwise might have long lain dormant. Although this industry inevitably declined with the intensive settling of frontiers and consequent decimation of wildlife, its impact on subsequent industrial development can not be passed over lightly. In fact, St. Louis is today the major raw fur center of the world.

As settlement progressed in the nineteenth century, a new type of pioneer came into Missouri. He might aptly be called a frontier capitalist for he contributed in those days the same invaluable service as the industrial capitalist of the twentieth century. He started enterprises of all kinds including manufacturing, laid the foundation for sound banks and sound money, launched movements for civic improvements and law enforcement.

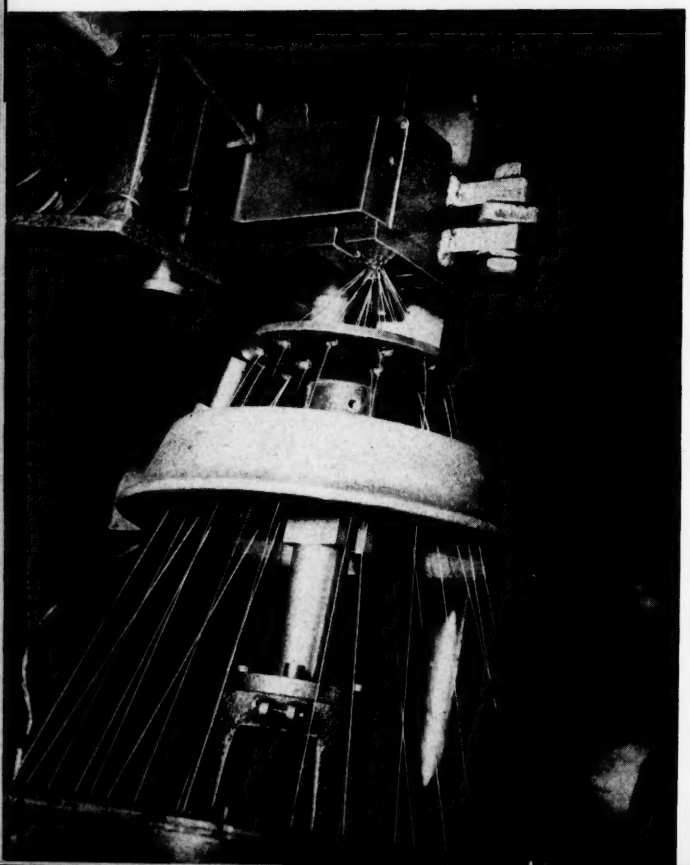
White and red lead factories were established, sending their products to glass works in Pittsburgh, to potteries in Ohio and other industries in other manufacturing centers. Distilleries, soap factories, tobacco factories, flour mills, grist mills, saw mills and at least one paper mill soon dotted the Missouri map. Missourians decided too that they should have their own glass works, potteries and other industries that previously had drawn raw materials out of the state. By 1850 Missouri produced annually more than a half million barrels of flours, a half million gallons of dis-

Continuous hot strip steel mill.





Above—Interior of a Missouri fire brick plant.



Below—Weaving wire rope at St. Louis.

tilled liquors and notable quantities of tobacco products, packed meat, woodenware, earthenware, leather products, carriages and wagons, lumber and furniture, brick and lime, soap, clothing, rope and a variety of other commodities, including end products of coal, iron, lead and zinc.

Industrial progress of the nineteenth century continued on into the twentieth. Excepting perhaps portions of the depressive thirties, there was no let up in manufacturing advancement. Statistics of 1939, last year for which an official census was taken, show manufactured products turned out with a value of \$1,388,056,000. Inconclusive as these figures are in view of progress made since, they afford illustration of the lion's share that manufacturing enjoys in the productive income of the state and its people. In that year total income from all major productive sources was \$1,776,030,000. Of this total the value of manufactured products constituted 78 per cent.

Although both agricultural and mineral production reached new tops as the nation's war machine swung into high gear, it is unlikely that manufacturing's percentage relationship was disturbed. By 1943 the number of wage earners in Missouri manufacturing had increased to 418,687 as compared with 178,538 in 1939, and electric power requirements for industrial establishments had grown to more than two billion kilowatt-hours against the one and a quarter billion in 1939. Even reconversion did not cut as sharply into Missouri production as it did in a number of areas. In mid-May 1946, Missouri manufacturing employment was 322,000 workers.

Manufacturing plants in the state numbered 4,796 at the time of the 1939 census. Value added by manufacture in these factories aggregated \$587,961,729. Value added per each wage earner was \$3,293 as compared with the United States average of \$3,085. Facilities installed since 1939 have greatly increased the number of establishments in operation. Conservative surveys indicate that a census taken now would disclose a total of not less than 5,500 establishments engaged in manufacturing.

Of the 4,796 plants in operation in 1939, 18 were textile factories of one kind or another. The 18 plants employed 1,541 wage earners, and these received \$1,151,786 for the year in wages. Aggregate value of production was \$6,429,505.

Plants turning out products of petroleum and coal numbered 23, with 1,099 wage earners, wages \$999,198, and value of production \$11,817,495.

Tobacco factories numbered 18; wage earners in these totaled 1,862; wages were \$1,923,025 and production \$21,258,064.

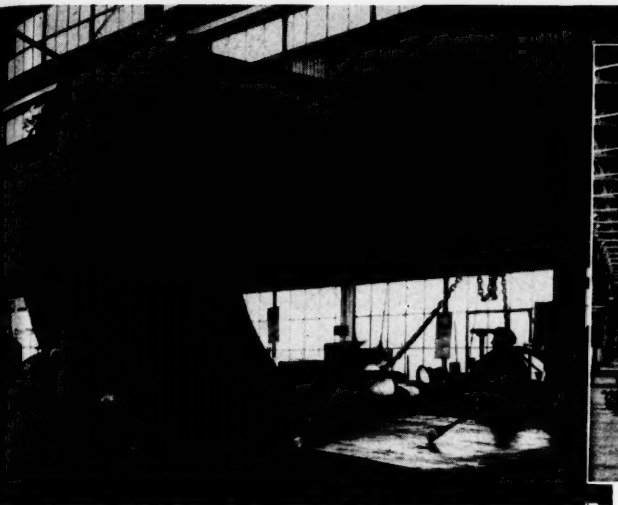
Plants manufacturing chemicals and allied products were 289 in number, employed 6,266 workers at wages of \$7,721,463 and turned out products valued at \$99,223,214.

Iron and steel plants numbered 238, employed 15,512, paid \$18,508,438 in wages and produced products worth \$89,059,177.

Establishments making wearing apparel of various kinds numbered 415, employed 27,986 at wages of \$421,396,595, and turned out products valued at \$109,251,014.

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Forming boiler section on large bending rolls.

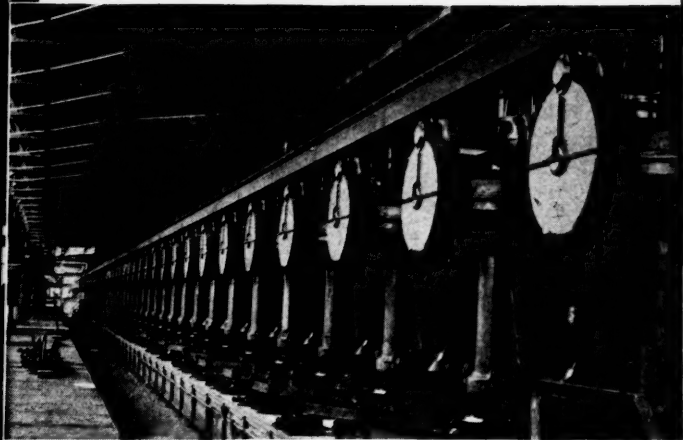


Plate glass grinding and polishing machines.

Furniture and other finished lumber commodities were made in 221 factories that had 6,024 wage earners drawing \$7,690,295. Production totaled \$54,432,510.

Plants manufacturing paper, pulp and allied products were 80 in number, employed 5,049 workers, paid \$5,112,207 in wages and produced \$31,668,457 worth of commodities.

Automobile and auto equipment plants, numbering 31, accounted for 6,997 workers, \$7,569,629 in wages and production of \$89,932,159.

Twenty other transportation equipment plants employed 2,449, paid \$3,185,337 wages, produced \$13,198,095.

Electrical equipment factories, numbering 61, had 7,793 workers drawing \$8,793,234 in wages, with production totaling \$51,502,937.

Rubber products were made in 16 establishments. These employed 1,065 workers, paid \$1,152,601 wages and produced to the value of \$10,098,753.

Food and household product manufacturing plants were in greatest number, totaling in all 1,458 establishments. This industry registered next to the highest employment with 27,838 workers. Wages were greatest in this group at \$34,648,442 and value of production was \$397,040,763, also the highest for any group.

Nonferrous metal products were fabricated in 130 plants. These employed 3,022 workers at wages of \$3,585,663. Their aggregate value of production was \$30,171,344.

Factories manufacturing machinery of various types except electrical numbered 240. Workers in these totaled 6,043. Wages were \$7,681,668, and value of production \$40,869,201.

Plants turning out lumber and other forest basic products were 162 in number; employed 3,514 wage earners; paid \$2,769,286 in wages; produced to a total value of \$15,817,732.

Printing and publishing with 849 establishments employed 10,261, with wages of \$15,322,101, and value

of production \$82,278,483.

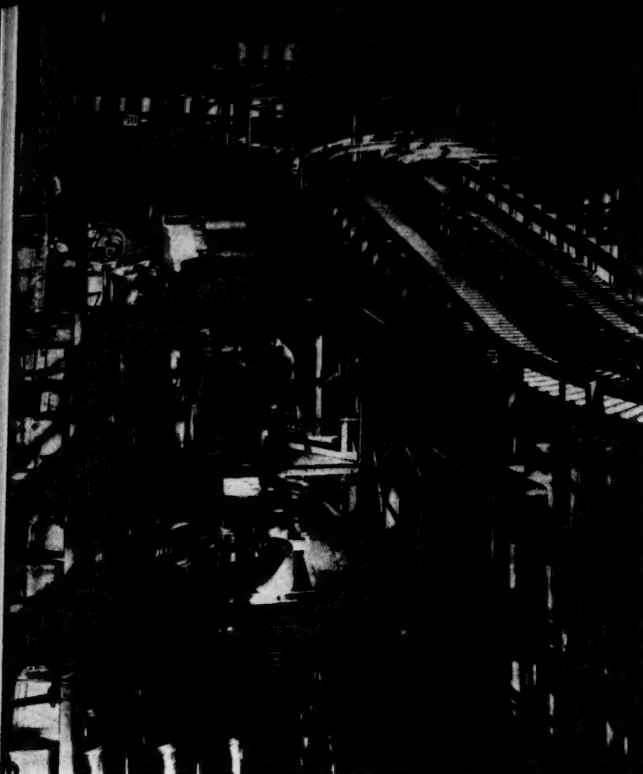
Stone, clay and glass plants had 8,882 workers, wages \$10,917,415, value of production \$85,053,561. There were 182 of these plants.

Leather and its products, including shoes, were made in 137 establishments. These employed 31,699 workers, the greatest total for any industry group in the state. Wages amounted to \$26,923,456. Value of production was \$131,679,563.

Since the 1939 census, notable additions are known to have been made to the state's manufacturing facilities. No fewer than 287 new plants or major additions to existing plants were installed during the war through authorizations from the War Produc-

Making cowboy outfits.





Metal rolls on way to annealing furnaces.

tion Board. Others, not directly connected to the war effort, but important in maintaining the nation's productive power were established through other priorities. These combined with exceedingly rapid installations since V-J Day serve to bring the number of manufacturing establishments in the state close to one thousand above the 4,796 in existence in 1939.

Among the new facilities installed by WPB authori-

Work pants manufacturing.



zation, machinery plants of various types topped the list. This industry gained no fewer than 80 new establishments before V-J Day. Others have started since. Food and household product plants were next in number with 63 new establishments. Following these, in the order of number: Chemical plants, 22; iron and steel and electrical equipment, 17 plants each; stone, clay and glass 12; Ten each for wearing apparel, automobiles and accessories, nonferrous metals; aircraft production gained nine plants; finished lumber products and cotton ginning, six plants each; petroleum and coal products five; paper products and rubber products, two each; one new facility each for tobacco processing, forest basic products, leather products, transportation equipment, plastics and ordnance.

Most of these new installations were large and important establishments. All were constructed so as to be readily convertible to peacetime production. Practically all have already gone through the necessary conversion process.

In the front rank in importance were the 22 new chemical establishments. Nearly half of the half billion dollars expended on war facilities went to the chemical group. One of the new establishments has been engaged on a secret product, not as yet officially divulged, but generally believed to be in connection with radar developments. Others made sensitized film, negative paper, varnishes, lacquers and a multitude of products strictly chemical in nature. Many will continue to produce the same commodities turned out for the war. Others have converted to production more in keeping with probable peacetime demand. The chemical industry has long been prominent in Missouri, some of the nation's best known producers having headquarters in the state, and these wartime installations will serve to augment the premier rank the state enjoys in this respect.

Prewar gains, obscured by the war effort, likewise have been extended over into the postwar period. The leather and apparel industries have reassumed former importance. The brewing industry is expanding even beyond former notable proportions. Meat packing is more important than ever.

In shoe manufacturing Missouri ranks no lower than third in the nation. Aside from the fact that this industry is the greatest employer of any manufacturing group in the state, great importance attaches to its ability to utilize hides from Missouri beef cattle and tanning materials from Missouri forests, thus tying in with two other industries of comparable high rank. Its end-product utilization of local natural supplies points the way to profitable integration.

In the category of apparel production and marketing, the state has taken on new importance. In St. Louis a recent but growing accomplishment has brought new prestige and prosperity to that city and to its state. St. Louis Junior Fashions is a designation now recognized in all the apparel marts of the nation. Since the time an alert merchandiser said, "Let's give young America the clothes it wants," the idea of St. Louis as a center grew until it now enjoys the same prestige with respect to youthful apparel that Paris, France, once boasted for apparel

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Fertilizer plant at Joplin.

in general.

Missouri brewery products rank high in national esteem. They are recognized from coast to coast. Census reports include the brewing industry in the group manufacturing foods, and leave somewhat obscure the fact that brewing in Missouri accounts for nearly one sixth of that group's production and a comparable proportion of employment.

As to meat packing, three of the seven largest meat packing centers of the entire country are located in Missouri. Their importance is being demonstrated in ever increasing fashion as the nation's appetite swings more strongly in favor of meat products as an item of diet.

Other important developments taking place during the postwar transition period include a plant that has been insalled for hydrogenation of coal. In actuality it is an establishment that served as an ordnance plant during the war. During the experimental stages of its new purpose, it will be operated by the Bureau of Mines. Later, when established on a profitable basis, it can be made available to private enterprise. This project is important, not only in its own undertaking, but also in demonstrating the feasibility of

turning war plants to useful purposes for peace.

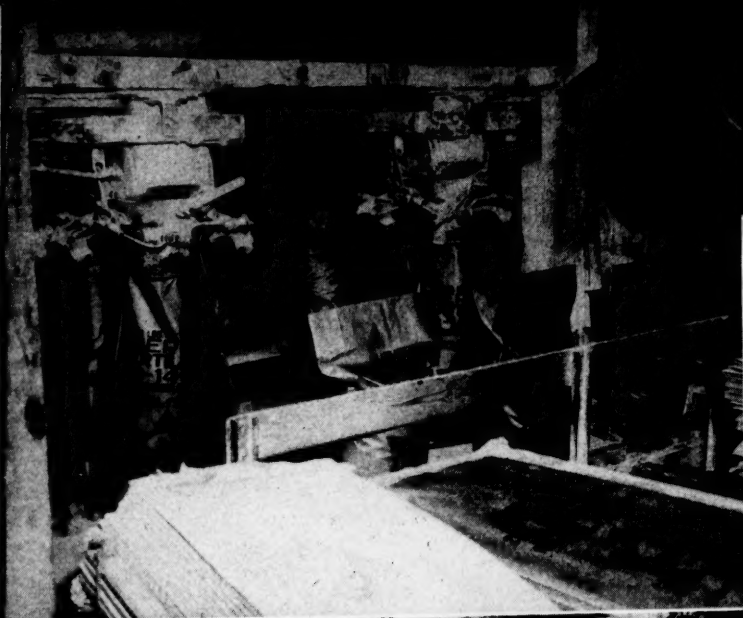
Taking a look into the future, signs are clear that that the rapid growth of the past few years may even be exceeded in those immediately ahead. Large plans



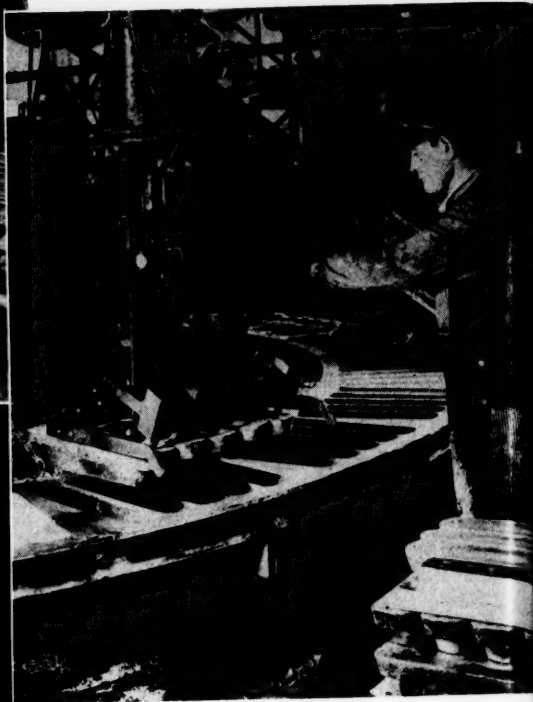
Above—Electrical equipment plant.

One of the 140 plants that place Missouri high as a shoe manufacturing state.

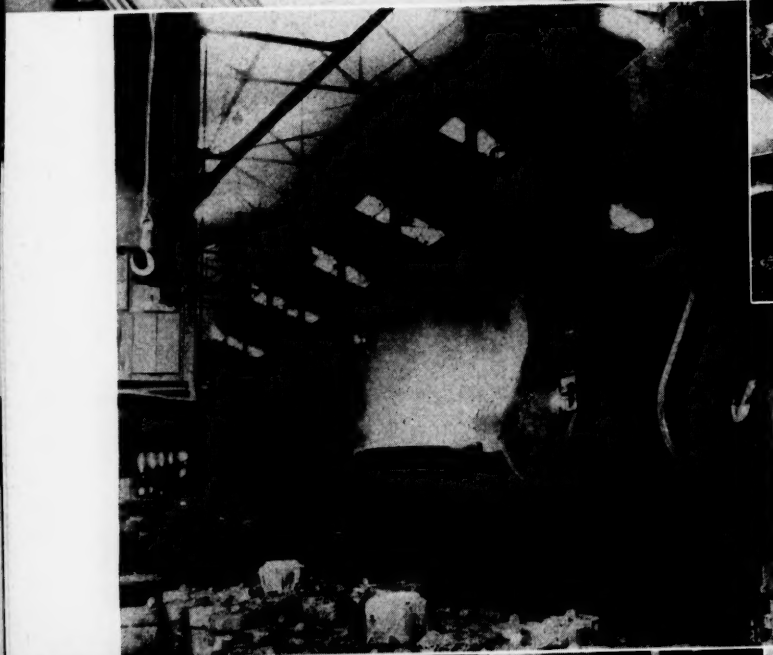




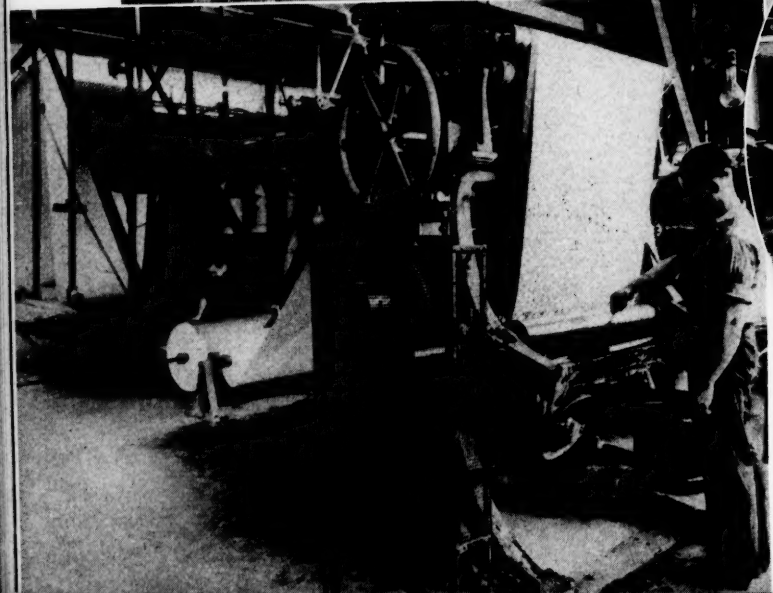
Left—Weighing and bagging Missouri fertilizer.



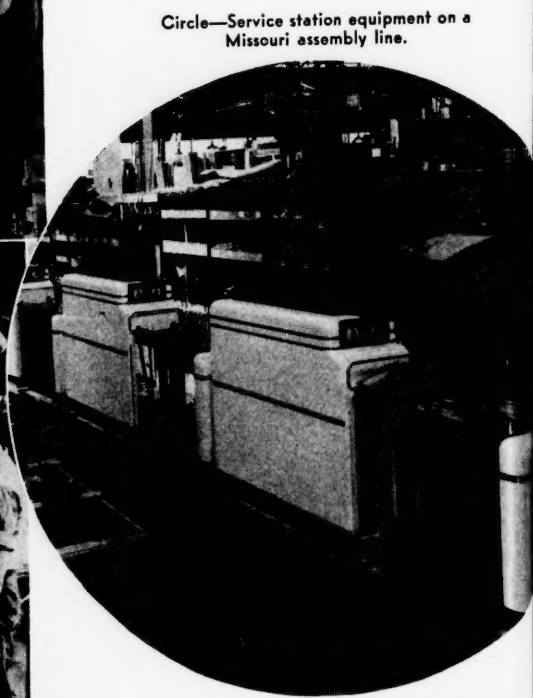
Below—Pig pulling in a wheel casting operation.



Left—Interior of a Missouri steel mill.



Left—Making fancy paper for packages and boxes.



Circle—Service station equipment on a Missouri assembly line.

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Right—Top—Paint manufacturing.  
 Right—Middle—Street cars being made at St. Louis.  
 Right—Bottom—Drive shafts for locomotives.

are under way. Among these are the plans of one of the major automobile producers to establish an \$8 million plant in Missouri; one of the nation's largest soap makers contemplates a comparable installation; local industries themselves have blueprints for substantial expansions.

Rapid growth in manufacturing has been matched by expansion and improvement of the Missouri distributive system. Postwar additions to wholesale and retail outlets have been on a percentage scale equivalent to that of manufacturing. The foundation for this expansion was already substantial. In 1940 there were in the state 7,649 wholesale establishments, employing 64,373 persons, and having aggregate payrolls of \$106,362,000. In addition there were 5,202 proprietors and firm members of unincorporated business whose compensation is not included in the payroll figures. Wholesale transactions amounted to \$2,261,256,000.

In the same year there were 48,581 retail establishments in the state, employing 132,583 persons, and with combined payrolls of \$119,237,000, and enjoying annual sales of \$1,102,503,000. There were at that time about 16.6 retail outlets for each 1,000 inhabitants.

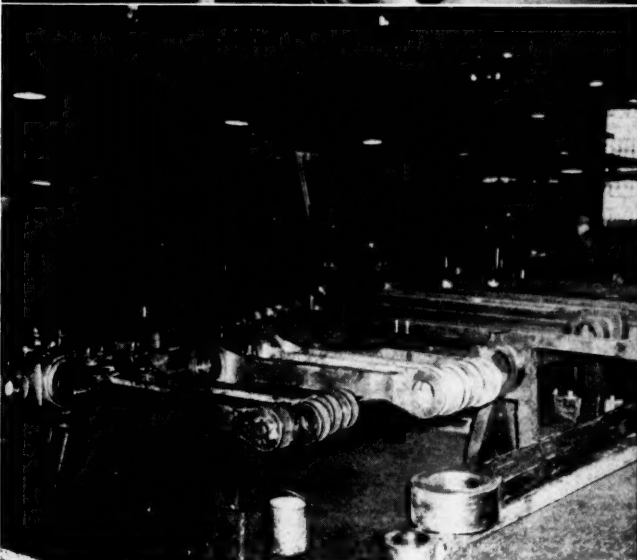
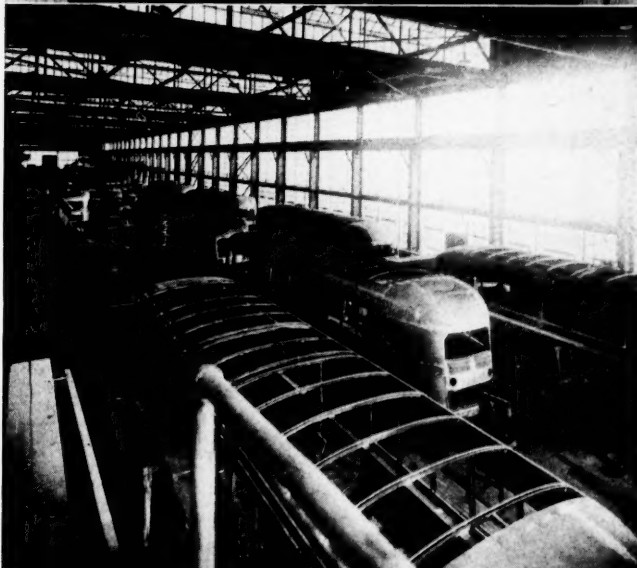
Missouri's accomplishments are becoming more and more recognized by all sections of the country. The entire nation cannot fail to reap advantages from this centralized hub of industry that not only creates, but distributes through its transportation spokes the results of its enterprise.

The Missouri State Department of Resources and Development has indicated its intention of publishing within the near future a directory of manufacturers operating within the state.

Pre-publication releases by this agency imparts the information that 5,526 manufacturers will be listed, a gain of 730 over the number recorded by the United States Bureau of the Census in its Census of Manufacturers for the year 1939.

Of the expected listings to be made by the Missouri State Department of Resources and Development, 1,948 are reported to be in St. Louis city limits and 229 in St. Louis County. Jackson County, embracing Kansas City will show 1,064 listings. Jasper County, with Joplin, will show 150. Buchanan County including St. Joseph will register 121, and a like number will be listed for Greene County with its Springfield. No other counties have been reported as yet by the Department, but it is known that substantial increases in the numbers of industrial plants have occurred generally throughout the state.

The Department further reports that during the first eleven months of 1946, 2,663 were listed as incorporated in the secretary of state's office in Jefferson City. Of these, 293 were foreign (out-of-state) incorporations and 2,370 were domestic incorporations.





Wheat is a principal Missouri crop.

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# AGRICULTURE

Natural advantage and the enterprise of its people have combined to make Missouri one of the outstanding agricultural states of the nation.

Based on a wide range of geological formations, there are 185 distinct types of soil, suited to practically every variation in agricultural growth. The state is also very rich in native subsoil limestone, and this supplies a highly effective calcium agent for rebuilding worn soil.

The alluvial bottomlands of the two great rivers that join just above St. Louis, are formed of a combined variety of clays, sands, marls and humus. The resulting soil is deep, light and remarkably fertile.

In the Ozark region the soils are gray brown or red in color, well drained in both top and subsoil. The lands in the lower lying portions are exceedingly rich for plant growth; those in the higher sections are well adapted for grass and forage growth.

The soil of the northwest prairies is a rich black loam; that to the east and north of the Missouri River is somewhat lighter, but well suited to livestock farming.

In the extreme southwest are some of the best grain lands of the country; in the extreme southeast there are reclaimed marshlands that are now prolific producers of cotton and soybeans. The forested area between these two sections is crisscrossed with fertile valleys.

A growing season of 180 days' length and a climate that is most generous to growing plant life serve to bring out in full measure the wonderful production of which these fruitful lands are capable.

Missourians have made good use of these blessings of nature, but in doing so they have had to add their own resourcefulness to that of nature.

When hardy pioneers from Virginia, the Carolinas, Tennessee and Kentucky trooped into the future Show Me State in the early nineteenth century, they found anything but prepared land ready for planting. There was much clearing and grubbing required. Fences and barricades had to be erected against Indian attacks and forays of predatory wild animals.

Tools were few and crude, but courage was abundant, and ensuing years saw wilderness transformed into a promised land.

On their arrival, they found in what little farming was being done, a system that was strange to them. a system of collective farming. Until their time, practically all settlement of the region had been by the French, with intermittent sprinklings of Spanish. From the old world these peoples had brought European practices of farming. One of these was the collective-farm system. Under this system the Frenchmen lived in villages and farmed what was known as the "common field." This field was fenced by all, worked by all, owned by all and shared in by all. Reports carried down from those days indicate that the French farmed only to eke out a subsistence, not to own land or accumulate wealth.

It became quickly apparent that the American pioneers were different. They did not join in established community enterprises, but instead struck out to get and clear as much land as they could. They made it plain that to them farming was not only a means for family subsistence but also an opportunity for civic development and improved wellbeing. Despite the dangers of Indians, wildcats and bear, those early Missourians insisted on having individual farms of their own, as large as they could acquire, even if they were beyond then existing frontiers.

That they foresaw increasing values for their lands is evident in records of glowing reports which they sent back to the states from which they had come, publicizing the fertility of Missouri soil. Even the most forward of present day advertising directors might take a lesson from their predecessors in early Missouri. A sample taken from historical accounts is said to have represented that ten penny nails planted in Missouri at night would sprout crowbars by next morning.

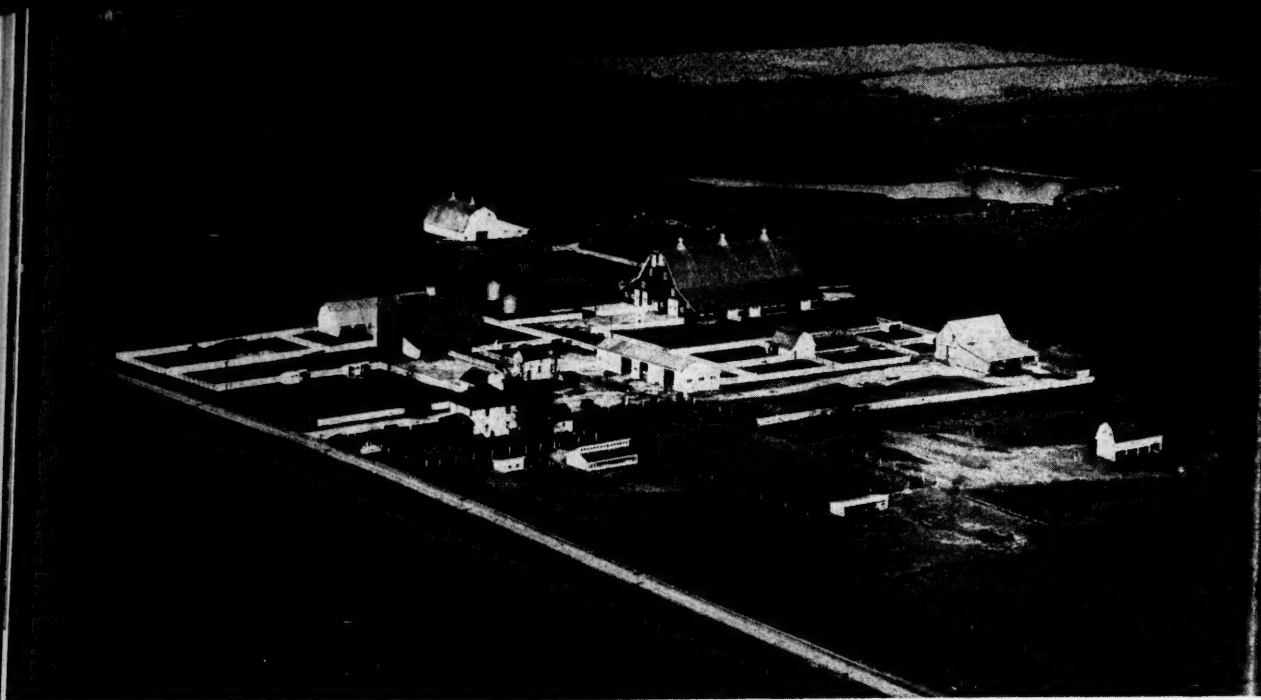
From such enterprising beginnings emerged in time the Missouri agriculture of today which, acre for acre, is second to none in productiveness and value. Farm lands in Missouri are priced with the best in the nation today.

In earliest days, corn and tobacco, both native to American soil, were the principal crops. The corn was used largely for home food and feed; much of the tobacco was flatboated down the river to New Orleans, there to be traded for commodities the frontiers did not produce.

By 1840, improved transportation had enabled

Missouri mules are of high quality and are much sought after animals.





Aerial view of farm near Hamilton, Mo., showing buildings, stock barn and pond.

farming to become a really profitable business. By that time, land in Missouri was greatly enhanced in value and most of the best lands had been taken up by settlers. In the years that followed, improved tools and machinery still further advanced the status of agriculture. Between 1840 and 1860 were introduced the first improved and completely iron-shared plows, the first reapers and threshers.

Wheat and other small grains came into increased importance and shared in expanded acreage. By 1849

corn production in the state reached 36 million bushels, wheat nearly three million. This was an increase in ten years of 100 per cent for corn, 200 per cent for wheat.

Thenceforth agricultural development became a march of progress. Enterprise kept pace with increasing demand. Better methods of production were steadily adopted. Modernized transportation facilities added further impetus. Constantly improved mechanization was brought into use. Soil conservation practices were placed in effect. The prosperity of farming today reflects the progress begun early in the 19th century.

Total farm cash income for the state in 1945 was \$708,446,000. Realized net income for every farm, after all expenses were paid, was an average of \$2,016.

Of the 44 million acres of farmlands available, only 12 million acres were required to attain these excellent results. With a splendid income from agricultural products, the state could still hold aside almost three fourths of its tillable land for rehabilitation or grazing which latter is in itself a soilbuilding process.

Such a method of procedure is in keeping with the balanced farming program adopted by Missouri agriculture. This movement which has taken on the nature of a statewide undertaking, and the purpose of which has become a state slogan, recognizes the future as well as the present and grew out of a stock-taking of wasteful practices tolerated in the past. No longer is it the aim to take the last ounce of till from the soil each year; but rather to diversify crops, mix stock raising and dairying with cropping, and give a large portion of the land regular and much needed periods of rest. In this program, livestock and

Turkey breeding is important in Missouri.



grain are teamed in a profitable partnership, each producing nourishing elements for the other.

Of the 12 million acres planted in 1945, the lion's share went to corn as it had from the beginning, with 3,920,000 acres being planted to this crop. Production was 105,840,000 bushels in that year which rates considerably below the 125,000,000-bushel average which has been maintained since 1900. It is expected, however, that production will mount to 175,000,000 bushels in 1946, to more than keep the average record intact.

Cash income from corn in 1945 amounted to \$20,696,000. This figure does not include the value of the part of the crop fed locally to livestock. Reported cash income covers only those portions of the various crops that actually enter the channels of trade. Were all the corn produced in 1945 figured at its average 1945 market price, income received therefrom would be shown as double the amount reported as cash income. It may logically be deduced, however, that the effect of that portion of the crop fed to livestock will be reflected in the cash income from the livestock itself, and to include both in reported cash income would result in a duplication of values.

Missouri's deep fertile soils and ideal climate favor corn production. In northern and western sections, best suited to its growth, the average growing season is of 172 days' duration. This length of time is fully adequate for a good corn crop to mature in all but the most unfavorable years. Annual precipitation in these sections, over a 20-year period has been 39 inches, producing sufficient moisture for excellent production. Corn acreage on the more fertile soils is increasing, and extensive use of hybrid seed, fertilizers, crop rotation, and better production methods result in high total production.

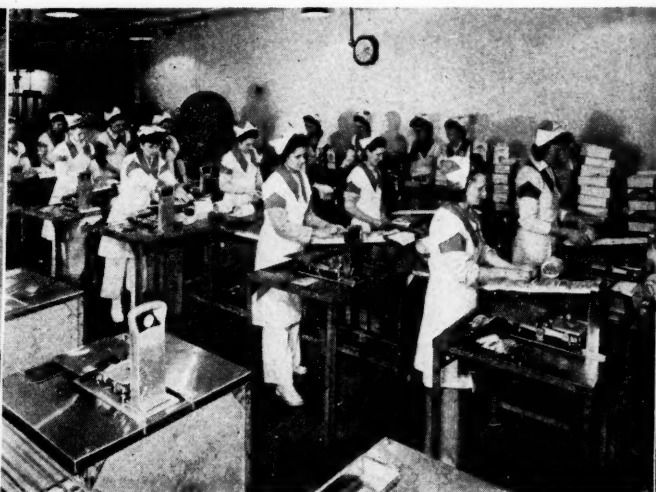
Soybeans is a Missouri crop that has rushed toward the front in recent years. During the war Missouri acreage of this valuable crop jumped from 50,000 to almost 900,000 acres. Ten varieties of soybeans are especially adapted to growing conditions in Missouri. Aside from its growing demand for industrial pur-

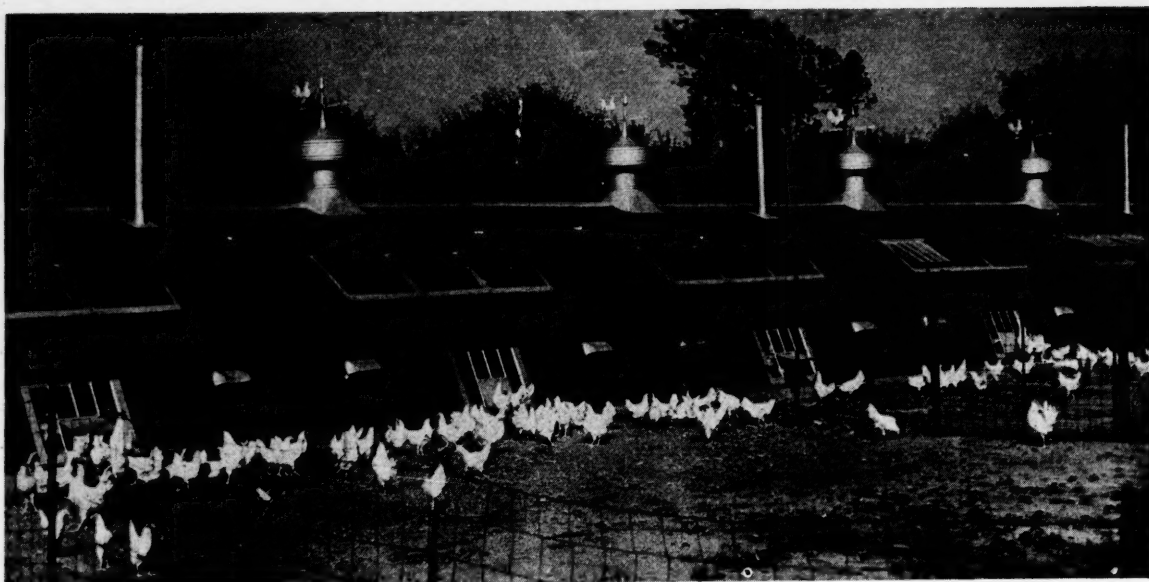


Above—A Missouri Orchard.

Left—Single one-ton litter at a Missouri stock show. Missouri is fourth in pig production. Large plants make the state a leader in meat packing.

Right—Slicing bacon in meat packing plant.

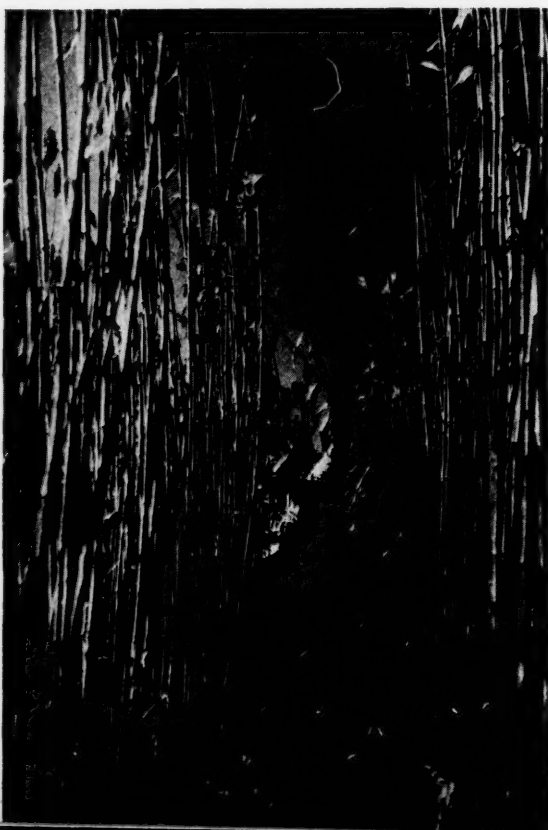




Quality chickens are the goal of Missouri poultrymen. The 1946 figure for chickens on Missouri farms is 26,707,000. Gross farm income from eggs and poultry was \$120,204,000 in 1945.

poses, the soybean is a valuable asset to farm economy. About 96 per cent of the soybean oil meat produced is used for livestock and poultry feed. The amount of soybean oil meal consumed by dairy cattle

Sorgo leaves being stripped for conversion into sorghum.



is increasing each year. In 1945 soybeans were planted to 896,000 acres in Missouri, producing 22,518,000 bushels that brought in cash income of \$18,322,000.

After corn, hay had the largest acreage, 3,372,000, and for the same reasons outlined in the case of corn, and even to greater extent, the cash income of \$5,129,000 falls far short of representing actual value. From the acreage planted in 1945, 3,935,000 tons of hay were reaped.

Wheat acreage was 1,553,000, production 22,518,000 bushels, cash income \$17,307,000.

Oats grew on an acreage of 1,598,000, with production of 31,161,000 bushels and cash income of \$3,389,000.

The cotton crop was planted on 250,000 acres from which 155,000 bales of 500 pounds each were harvested. Cash income from cotton lint was \$15,937,000, from cottonseed, \$1,987,000.

Other important crops were:

Barley, 77,000 acres, 1,463,000 bushels, cash income \$217,000;

Rye, 60,000 acres, 660,000 bushels, cash income \$347,000;

Potatoes, 34,000 acres, 2,992,000 bushels, \$1,109,000;

Sorghums, 29,000 acres, 435,000 bushels, \$156,000;

Tobacco, 8,000 acres, 6,800,000 pounds, \$3,542,000;

Sweet potatoes, 7,000 acres, 595,000 bushels, \$689,000.

Orchard crops brought in substantial revenue, led by peaches with a cash income of \$2,220,000; apples, \$1,999,000; strawberries, \$1,452,000; pecans, \$369,000; and pears, \$330,000.

Miscellaneous vegetable truck crops netted \$6,594,000.

An important transition in the early development of Missouri agriculture was the introduction of live-

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stock raising on a large scale. So brightly does the state shine as a producer of plant products that the startling importance of livestock revenue in its agricultural income is not always realized. The growth of the state has been so intertwined with products of the soil that it is not unnatural that most accounts of its development should emphasize that phase of its economy. It becomes very revealing therefore to learn that better than three fourths of its agricultural income comes from live creature products.

In 1945, \$591,102,000 of its \$708,446,000 total cash farm income came from livestock and products thereof. Missouri regularly presses all states for leadership in animal products revenue, and was exceeded only by three states by very narrow margin in 1945.

While the livestock industry has seen its most intensive growth in recent years, the possibilities in its development were seen years ago. Cheap and plentiful meat derived through game hunting became scarcer as frontiers receded and wildlife became deprived of its natural habitat. Quite naturally during the 1840's when farming was beginning to hit its stride, the demand for domesticated meat was gaining strength.

In fact, it is recorded that as early as 1838, one of the best known guide books of the time, a directory devoted to facts and figures pertaining to frontiers, carried in its pages a section that stated Missouri was a coming country for raising cattle, horses, hogs. It



Tanks for soybean oil. Missouri production of soybeans is growing. The 1945 figure was 4,490,000 bushels.

related that herds of cattle were already being grazed on the prairies and that many were being slaughtered and salted for shipment through New Orleans to the



Above—Brahman Cattle.

Below—Fine Holstein cattle. Missouri stands eighth in total number of dairy cattle.



east coast and West Indies.

Settlers, from the beginning, had brought in with them small numbers of farm animals. These were used at first mainly to furnish supplies for farm life, such as milk, butter, eggs and wool. Slaughtered meat was mostly pork. When the demand for all kinds of slaughtered meat became nationwide, however, Missourians imported foundation stock and began livestock breeding on a magnified and improved scale. Early in the second half of the nineteenth century substantial quantities of salted and cured meats, hides, tallow and lard were shipped out. Live cattle and sheep also were marketed; these were driven at first to river trade centers for loading on boats, later to railroad stockyards.

Introduced along with fine cattle were numbers of thoroughbred horses, and jacks and jennets. The racing of horses became a popular pastime, the breeding of mules a lucrative business. Both still flourish in many parts of the state.

In 1945 cattle in the state numbered 3,347,000, with estimated value of \$203,962,000. Sheep numbered 1,472,000, valued at \$12,740,000; swine, 4,108,000, \$77,130,000; horses, 519,000, \$27,511,000; mules, 172,000, \$14,681,000.

Cash income from cattle for slaughter totaled \$207,039,000; from hogs, \$158,815,000; from sheep and lambs, \$15,174,000. These receipts represent only part of livestock revenue. Dairying and poultry contribute notable additions.

Missouri is a leading dairy state, with a total of 1,148,000 dairy cows in 1945. In recent years dairying has become an industry of prime importance. Sales of milk alone brought in \$75,058,000 in 1945. To this must be added receipts from farm sales of butter, \$470,000, and sales at wholesale of butterfat, \$21,780,000. Modern dairy farms, equipped with the latest labor saving devices dot most Missouri counties.

The weather is favorable for the dairy industry. There are nine to eleven months of open pasture per year and an average of 233 days of sunshine each year. Most Missouri soils are abundant producers of grasses, forage crops and grain necessary for optimum milk production. Thousands of natural springs and clear streams provide plenty of water. These advantages, combined with general improvement of dairy production practices have served to raise the average daily milk production per cow about two pounds over the past five years. To this end the Agricultural Extension Service and the Missouri College of Agriculture have been greatly helpful. Vocational training in agriculture and 4-H club work among the farm youth have contributed materially to the improvement of dairy production. Likewise the quality milk programs and sanitation regulations sponsored and enforced by the Missouri Department of Agriculture have brought about corresponding gains in the quality of milk.

Jersey, Holstein-Friesian and Guernsey breeds predominate, with Brown Swiss and Ayrshire popular in a number of localities. The number of herds of registered dairy cattle at the last herd census were: 781 Jersey herds, 628 Holstein, 498 Guernsey, 62 Brown Swiss and 56 Ayrshire. The breed known as

the Milking Shorthorn, a dual-purpose breed, is utilized by farmers who desire both milk and beef production.

Along with dairying, poultry raising has attained growing importance. Income from poultry amounted to \$105,457,000 in 1945. This income was made up of \$68,306,000 from eggs, \$2,406,000 from broilers, \$8,728,000 from turkeys, and \$25,591,000 from miscellaneous sales including ducks and geese.

Aiding the attainment of these gratifying results in both dairy and poultry enterprise is a unique and highly useful undertaking under way at Gray Summit, at the edge of the Ozarks. There, on a 730-acre farm, 17,000 animals and birds are used in research projects aimed at making their raising more profitable.

Research at this farm has produced chickens said to lay eggs with non-breakable yolks, or at least so tough they will not break under ordinary stress. Cows on the farm are reported to give more than twice the amount of milk obtained from cows on the average dairy farm—so much milk, in fact, that they must be milked three times a day. It is facetiously said that the nourishment furnished the animals is so tempting that the pigs make hogs of themselves. The president of one of the nation's leading feed producers, sponsor of the project, has said: "If this country's livestock production could have been placed on the same efficient basis maintained here, we would have been able to turn out as much meat, poultry and eggs as we do now without the 40 per cent increase in livestock population that has taken place in the last six years."

Missourians are taking advantage of the heritage they have in their land by means of their balanced farming system. Balanced farming, as they practice it, is a carefully planned system which starts with the family itself and takes into consideration the entire farm unit. It ties the individual enterprises together to conserve the soil and at the same time get progressively greater returns year after year in terms of net family income. Several steps are involved in the plan.

In step one, the present procedure is analyzed, a map made of the farm layout, crop history of each field over the past two years recorded, livestock enumerated and recorded, crop and management practices checked.

In step two, a revised farm layout and cropping system is charted.

In step three, a selected livestock enterprise is adopted for the revised system.

In step four, complete details are mapped for the revised cropping system, soil treatments and other practices needed for full efficiency. This step entails the entering of crops to be grown in each field for each consecutive year of the new rotations. It indicates the soil treatments to be used on each field each year.

In step five, a livestock management calendar is prepared.

In step six a revised farmstead layout is made.

Step seven summarizes farm and home improvements planned, and credit needed.



Above—Missouri ranks fifteenth among the states as a producer of burley tobacco.

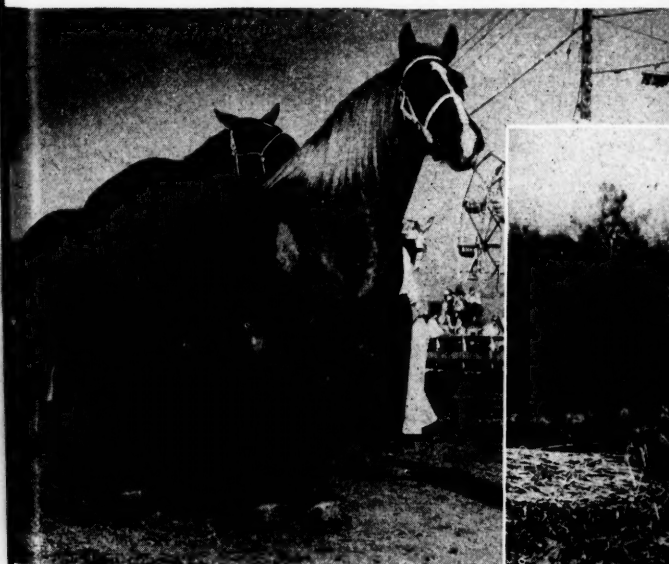
Above—Right—Air view of terracing as practiced in Missouri, where farm real estate values rank eleventh in the nation. The farm is near Festus.

Right—Cotton being driven under the "suckers" which take it up into the gin.



Below—Missouri produces fine draft horses such as this Belgian being judged at a county fair.

Below—Right—Cane growing for domestic use is a prevailing custom in parts of the Missouri Ozarks.



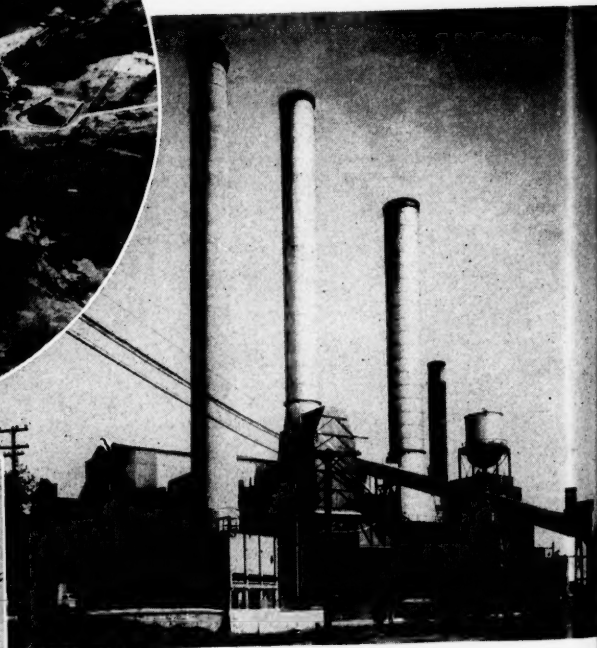
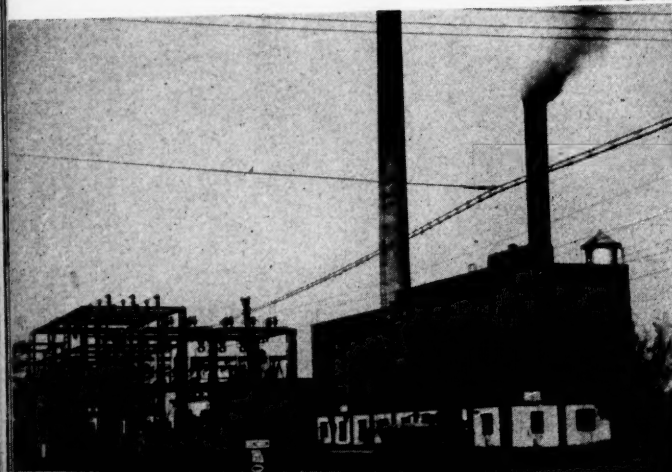


Above—Kansas City Power and Light Company.

Left—Missouri Power and Light Co., Jefferson City, Mo.



Circle—Empire District Electric Co., Joplin.



Above—St. Joseph Power and Light Co., St. Joseph, Mo.

Left—Missouri Public Service Corp., Warrenburg, Mo.

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# POWER

Fully adequate electric generating capacity is available to power Missouri's fast growing industrial facilities.

Constant expansion of power output has been required over a great many years in order to keep pace with the rapid rate of manufacturing growth, but this challenge has been met at all times. Even during the trying days of war time shortages, Missouri manufacturing was supplied with all necessary power without curtailing the requirements of utility consumers.

Growth in power production has been tremendous throughout the period of industrial expansion. In the early part of the century, power capacity in the state was limited to small plants, few and widely scattered. Not so today. Now there is no crack or cranny of Missouri where an incoming factory or processing plant could not be located with complete ease of mind in regard to power supply.

Installed capacity within the state boundaries exists to the extent of 844,705 kilowatts for the state at large. Of this, 150,550 kilowatts are of hydro-electric origin; 637,243 available from steam; and 56,912 from internal combustion. In 1944, a total of 2,752,700,000 kilowatt-hours of energy were turned out by all power plants. Of this quantity, 2,034,123,000 kilowatt-hours were absorbed by the requirements of industrial establishments.

Of the total power produced, 585,145,000 kilowatt-hours were by hydro plants; 2,051,109,000 kilowatt-hours were by steam; 116,446,000 by internal combustion.

In addition to these facilities, wholly within the state, there is available an enormous potential of power energy from plants just across the Mississippi River.

Sources of power, other than electric, are equally abundant. With natural gas and fuel obtainable in part from Missouri oil fields, and in overabundance from those of sister states, and with great beds of coal within the state's borders, there need be no fear of lack of fuel for powering future expansion of industry.

All of the larger power companies, and many of the smaller ones, maintain, as part of their personnel structure, development departments whose functions are to assist manufacturers in finding advantageous locations for new operations. In these departments there are kept on file detailed data on available plant sites, transportation facilities, surveys of water and raw material supplies, statistics on markets, tax rates and other factors vital in the selection of soundly-based factory locations.

In addition to its benefit to business, bountiful supply of power has made possible extensive electrification of Missouri farms. As of 1943, a total of 68,528 farms in the state enjoyed power line facilities, and this number has been materially increased since the 1943 report was issued.

Having given practical demonstration of their

power supplying capabilities during the war when vast new industrial plants and numerous military facilities were installed, Missouri power companies nevertheless indicate no intention of remaining static. Important plans for expansion have already been drawn up for execution in early postwar years. These are expected to match the greatly expanded industrial activity which gathers momentum as time goes by. The new power projects consist of new plants, as well as of additions to those now existing.

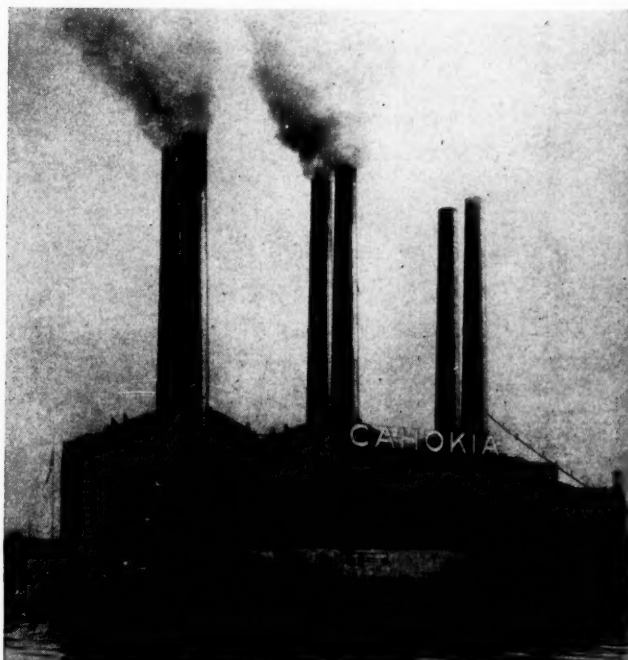
The power situation in Missouri should appear especially attractive to manufacturing concerns considering sites for new installation.

The sources of power are diversified and power rates are among the lowest of all industrial centers of the country. Transmission lines, some of which are of double circuit type, are of great number and criss-cross the state in all directions.

Numerous water shed areas make production of hydro-electric power unusually feasible, and power from this source is now available in substantial quantities from plants widely spaced and strategically located to serve practically all industrial centers or sites for new plants.

It is with the expectancy of expansion both in existing industrial centers and in the number of industrial centers that most of the presently operating power plants have already laid out plans for additions to existing facilities, of installation of entirely new power-generating facilities.

Much of the power from this plant of Union Electric Co. of St. Louis, is used to drive Missouri industry.





Above—Over \$20,000,000 worth of lead and zinc has been taken from the open pit mine at Oronogo, Mo.



Left—Limestone bluff near Cape Girardeau.

## MINERALS

Although agriculture and manufacturing overshadow mineral production in Missouri, mining antedates both and was probably the state's earliest industry. It still holds a major place in the state's economy.

Lead has been mined in Missouri for over 200 years, iron for over 100, and zinc for more than 50 years. In pre-state days, numbers of large mining companies were formed in France and Spain for the purpose of setting up lead operations in Missouri. A number of mines were opened, some of which are still in operation, and are among the best known in the world.

As the years went by, settlements grew up around the mines and commerce of various types developed. Lead played an important part in those days in production of equipment, instruments and utensils. Furthermore, it was a primary source of food and safety. A great deal depended in those days on a well-

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Lime mines are widely distributed in Missouri. This cement plant is in Marion County where lime is plentiful.

filled pouch of lead bullets.

The first important lead mines were opened about 1725, in a search for gold and silver. They were opened in what is known today as the Southeast Missouri Lead Field. That section has continued to be the most prolific producer of lead, turning out three-fourths of the production of the state, while Missouri itself has unceasingly been the leader of all its sister states. It far outstrips any other state in production of lead, and in 1944 produced 174,683 tons, 42 per cent of the national total. Missouri lead fields are probably the most important in the world, at least the most important of those that have already been discovered. The ore lies close to the surface, is rich, and easily produced and smelted.

Important deposits of iron ore exist in the state. In fact, Missouri was the first state west of the Mississippi to mine and smelt iron. In early days iron production was a valuable factor in state development. Nearly half the counties in the state contain iron deposits, and every one of those counties in the Ozark region contains some of this ore. The first iron furnace was erected as early as 1815 in the Pilot Knob region.

In 1844 the deposits of Iron Mountain were opened up. In 1887 Missouri produced 430,000 tons of iron ore and 200,000 tons of pig iron.

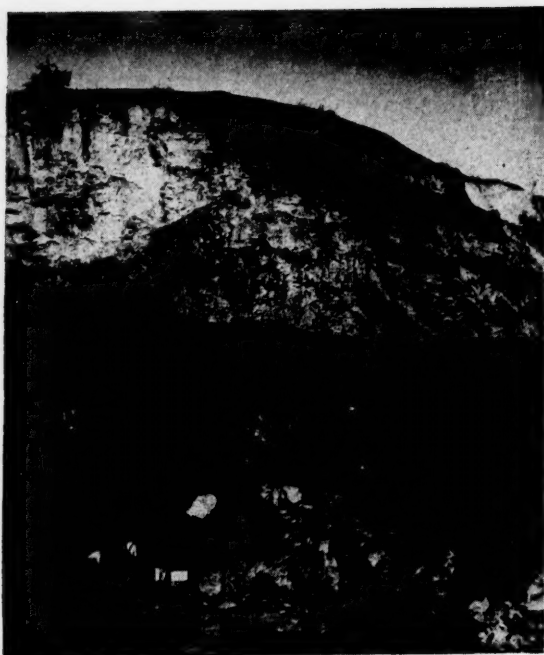
The discovery of more easily worked veins of iron in other sections of the country has somewhat diverted, temporarily at least, interest from these valuable deposits. This does not indicate, however, that the industry will decline. The growing scarcity of iron-making materials in the nation at large presents promise that veins of ore in Missouri will become even more highly esteemed. In 1944, production was 19,282 tons.

In 1870 zinc, the full value of which had previously been unrecognized, began to become important. Today zinc is the state's second ranking metal. The zinc belt in southwest Missouri is one of the best in the United States. Zinc is also produced in connection with lead in the southeast section. Around 100,000 tons of primary slab zinc are produced annually.

The discovery of zinc drew thousands of new citizens to the state, and the influx was much in the nature of the gold rushes that occurred in far western states. A bit of irony prevailed in the situation in the

One of the world's largest coal stripping shovels operating south of Kansas City, Mo.





Ore from this open mine near Iron Mountain runs as high as 60 per cent pure iron.

fact that zinc had been mined for years along with lead and had been thrown away as worthless. Before recognition of its usefulness, miners had treated it very much as they would jack rock in the mining of coal. Huge piles of "jack" may still be seen in the waste dumps of some of the lead mines. Quantities of it have been recovered and smelted. Just as lead had a powerful effect in the development of southeast Missouri, so did zinc in the southwest.

A large variety of other metals, important but not

as yet widely worked, are present in various sections. Among these nickel has received some attention, but not in proportion to its importance. Deposits of nickel in Missouri are among the largest in the United States. Production from these is on record for as early as 1850. By the turn of the century output had reached 2,000 tons a year, and is about double that quantity now. In July, 1944, new discoveries in Madison County substantially increased output, and a modern smelting and refining plant was set up at Fredericktown where both nickel and nickel-cobalt are being produced by flotation mill process. Since domestic production is only an infinitesimal part of the quantities of these metals utilized in the United States, a bright future would seem to lie ahead of the Missouri deposits.

Also available for production are silver and copper, both of which have been mined for a number of years, and exist in the state in substantial quantities. Copper production in 1944 was 6,604,000 pounds; silver 92,243 troy ounces.

Nonferrous minerals are found in wide abundance, and are being worked on an extensive scale. Coal is not only the most important of these, but one of the most important of all mine products, from the standpoint of production volume and value of output. Coal is found in more than one-third of the state's area, and has been a leading factor in the expansion of the state's economy.

Use of this natural resource began in 1804 when it was first mined for local purposes. By 1850, 100,000 tons were being mined annually; and by 1875, a million tons. Production reached three million tons in 1885, and passed the four million mark soon after 1900. In 1944 output was 4,530,000 tons.

Missouri coal, now being mined in 37 counties, is largely of high volatile rank, and this makes it desirable for industrial as well as domestic uses. Preparation plants of modern design, including mechanical cleaning or washing operations, prepare

Mine chat piles and smelter at Joplin.





Open pit clay mine, the reason for location of the large fire brick manufacturing industry at Mexico, Mo.

various sizes adaptable for industrial plants and homes.

Of the four million tons normally mined each year, approximately three-fourths is by the surface or strip mining method. The low cost of this method makes an abundance of economical fuel available for Missouri citizens, institutions and industries. Furthermore the excellent railroad facilities which criss-cross the coal fields and extend on into other states makes large tonnages available beyond the state's own boundaries.

The evolution of increasingly efficient mining equipment has made it possible to go to greater and greater depths to uncover coal seams underlying the surface which, by reason of shallow and insecure roofing, could not be mined by underground methods. Thus the strip-mining technique has made low-cost fuel available that otherwise would be lost to the use of man.

Coal seams in Missouri are usually three feet or less in thickness, but are relatively clean of impurities, and thus high production per acre is attained.

There are two principal coal producing areas: the northeast and southeast sections of the state, and in both sections some of the world's largest shovels used for removing the overburden above the coal are in service. Some of the most modern preparation plants are in operation, and the equipment for haulage throughout the strip mine industry in these regions has been pioneered and developed to a high state of efficiency.

Missouri's mineral wealth includes extensive and valuable stores of stone and clay.

Clays range from high grade china and fire clays to a variety of shales. In 1944 a total of 927,770 tons of all types were produced. Products processed locally from these materials run high in value. One of the largest fire-brick plants in the world is located in Missouri. There, in huge concrete bins over 6,000 tons of processed Missouri clay, tested by laboratory control methods, are always in storage for manufacture. This plant sought location in Missouri in order to avail itself of clays that are fundamental to production of refractory products. The fire clay occurs in almost horizontal strata over vast areas. Open pit

mining and selected blending are made possible by the clay's location close to the surface.

Other important factories turn out chinaware, pottery, terra cotta, sewer pipe and tile from Missouri clays. The occurrence of rare alumina diaspore and burley clays in certain locations adds materially to the overall value of clay raw materials, and helps the state maintain a premier position in the manufacture of refractory clay products.

Barite, important in the manufacture of paints, rubber goods, oilcloth, linoleum and chemicals, is mined in several localities. Missouri is one of only seven states producing this material and contributes a large share of the national output. Mining of barite began about 1860 and assumed importance in 1893 when Missouri became the second highest producing state. Since that time it has remained consistently near the top in barite production. Output in 1944 was 150,748 tons.

Missouri is also one of the few states that produce

World's largest known deposit of pure glass sand near Crystal City,



high grade silica sand for glass making in appreciable quantities. This product is found in a number of counties, and nationally known glassmaking firms have established plants close to this source of supply.

Cement, lime and other limestone products are quarried in substantial quantities. Extensive outcrop belts of extremely high grade limestones suitable for the manufacture of both lime and cement have enabled industries working these deposits to grow to the point where they represent a combined annual business of over \$13,000,000 annually. The manufacture of lime was begun in 1880 and there are now a dozen substantial plants in operation in the state. Five plants, making Portland cement, have an aggregate capacity of more than 8,000,000 barrels a year.

Some of the limestone deposits average close to 99 per cent pure calcium carbonate, and important operations are engaged in the production of precipitated calcium carbonate. The estimated life of deposits of this nature now being worked runs into hundreds of years and thus presents no problem of pure raw limestone supply for many generations of Missourians yet to come.

Other stone industries produce a variety of products which include marble, dolomites, granite and chats.

Missouri marble enjoys widespread fame. It is found in the walls and adornments of buildings throughout the country including many in the nation's capital. Its far reaching appeal bespeaks its quality and beauty, and also the efficiency with which it is produced and marketed. Missouri marble producers no longer toil with crude hand tools to uncover the valuable deposits and process them for use. Nowadays high speed quarry machinery removes overburden, mines the huge blocks and speeds them to specialized finishing rooms where precision saws and accurate finishers turn out perfectly faced, accurately designed pieces ready for installation. The economy that this progress has brought about has made it possible for architects and builders to include ever increasing quantities of marble in projected building designs.

The salt deposits of the state are noteworthy chiefly for their historic connection. In the early nineteenth century a large tract of land lying west of Cedar Creek and north of the Missouri River was discovered to contain salt by following buffalo that used the region as a salt lick. Salt was a scarce and eagerly sought item of living in those pioneer days. The region became known as Boone's Lick when two sons of Daniel Boone began producing usable salt there in 1807. Others likewise became engaged in the enterprise since it was then a profitable business to make salt and ship it down the Mississippi River to New Orleans, or up the Ohio to points in the east. The enterprise started by the Boone brothers had considerable influence in building up that section of the state. By 1812 a number of immigrants had arrived to take part in the salt-making business and others came with them to farm the fertile lands lying nearby.

Along with the other minerals, oil and gas are being produced in Missouri. While production has never yet been very large, two areas, the extreme northwest

and extreme southeast are looked upon as being geologically favorable for oil or gas accumulation. Both areas have received the attention of oil companies and some test wells have been drilled. More detailed testing will be required before it is known whether or not substantial petroleum pools are present. In 1944 natural gas was produced to the quantity of 160,000,000 cubic feet, and crude oil 36,000 barrels.

The geological formations in which Missouri minerals occur belong to four of the great divisions. The Quaternary is represented by the clays of the alluvial bottoms, intermingled with sand strata; also by the clays of the bottom prairies and the silicious marls of the bluffs found there; and finally by the granites and sandstones. The Tertiary is exhibited in the bluffs and bottoms of the southeast. The Carboniferous, embracing the coal and iron deposits together with accompanying strata of limestones and sandstones appears in the north and northwest. The Eozoic shows up in the southeast corner.

For the past quarter century states of the South and near-South including Missouri have been responsible for 40 to 48 per cent of the value of minerals produced in the United States. Missouri has been a heavy contributor to this record. It is a fact that is perhaps not fully appreciated that the growth of mineral production and expansion of mineral processing industries in Missouri and the South have had important influence on the economic life of the entire nation.

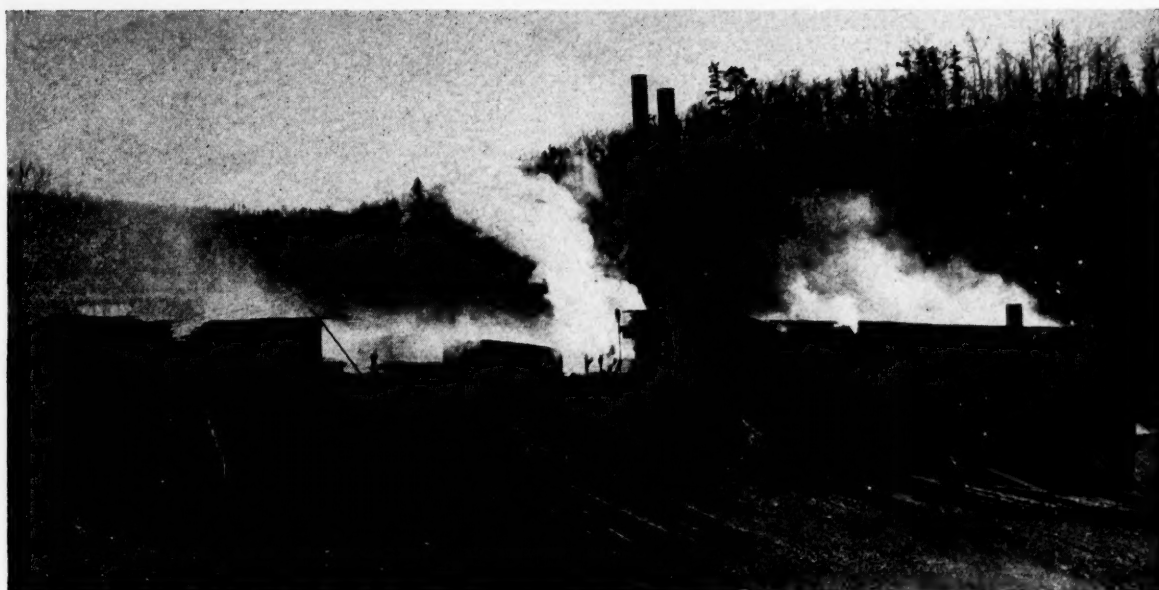
Known mineral reserves also are impressive. To cite but one instance of these, the Bureau of Mines of the United States Department of Interior estimates that the zinc-lead reserves of the Tri-State Area, of which Missouri is a substantial part, stand at nearly 51,000,000 tons of minable ore, valued at \$171,000,000. Of the estimated reserves, Missouri is credited with 24,768,000 tons—almost 50 per cent of the total.

A lead stope at Bonne Terre, Mo.



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Missouri Lumber Mill.

## FORESTS

Missouri is conserving its forests. The eighteen million acres that still stand of its magnificent timberlands are being managed with caution and wisdom. Eighteen million acres is no small area, when computed alone, or compared with acreages of other states; and conservation according to Missouri ideas does not mean dormancy by any means. Substantial production of forest products and manufacture of finished articles are being carried on along with the conserving measures. In 1939, last year of published statistics, 162 plants producing lumber and timber basic products turned out production valued at \$15,817,732; while finishing plants numbering 221 and making furniture and related articles produced commercial commodities valued at \$54,432,510.

During the war six additional establishments of substantial size were put in operation, indicating that Missourians have no intention of letting their timber industries come to a standstill.

Missouri ranks as a leader in production of barrel staves. Timber for lath and shingles is a big forest industry.



JANUARY NINETEEN FORTY-SEVEN

A lesson, however, has been taken from the experiences of states to the north and east, and measures have been adopted that should protect Missouri forests from a similar plight.

Of the large timber acreage standing in the state, a great portion, over one and a half million acres, has been set aside in national forests. Other hundreds of thousands of acres are included in state forest reserves and state parks. These untouchable areas alone constitute a valuable nucleus for perpetuating this prized natural resource. At the same time, scientific thinning procedures within these boundaries furnish substantial quantities of raw materials for industrial use.

The state government, however, is not alone in its efforts to maintain the forests. Private interests, engaged in working the timber, are contributing their share in the undertaking. Manufacturing plants which own their timberland are constantly at work replenishing the timber cut for operations, and in fact all elements of the state's population appear reforestation-minded.

This is especially noticeable in the northern part of the state. That section, being a close relative of the Great Plains region, was less bountifully blessed in the beginning than other sections in the matter of timber. Large areas were found in a practically treeless state by the earliest pioneers. Now, excellent patches of woodland stand on what was once unshaded prairie. While these tracts were not forested with view to industrial use, and are primarily sources of comfort and beauty, and guardians against soil erosion, they contribute substantially to the state's timber supply.

Hardwoods and pine intermingle in the wooded sections. Of the hardwoods the oak variety is prob-

Missouri has nearly 18,000,000 acres of forest lands.

ably the most serviceable, and of the species of oak the white oak is the most valuable. The latter is preferred and extensively used in Missouri plants engaged in cabinet work, interior finish and flooring manufacture. Only two other woods are more highly esteemed for these purposes and neither exists in the quantities enjoyed by white oak. Even so, black cherry and black walnut, the two most highly preferred, are common in Missouri and the state leads the nation in its quantity of the latter variety. The wood of the red oak in the state closely resembles that of the white oak, and occurs with greater frequency; but it is somewhat inferior in texture and durability, and is used as a substitute where white oak is not readily available.

Poplar ranks close behind Missouri oak in value and popularity. Being one of the softer varieties of hardwoods, and more easily worked, it goes mostly into veneers and quickly made furniture and fixtures. A number of Missouri wood processing plants are engaged in activities that utilize poplar.

The hickory of the region is particularly tough and is highly prized as material for golf sticks, tool handles and other appurtenances that require flexible strength. While there are not as many of these industries in operation as in other types of woodworking procedure, those that exist are important.

The gums, chiefly of the red variety, found to greatest extent in the southeastern part of the state, are very popular with furniture manufacturers.

Hardwoods that team with these major species, and act as substitutes in many instances are chestnut and chestnut oak, substitutes for oak, basswood for poplar, ash for hickory, and a number of others to be found in relative abundance.

Of softwoods the shortleaf pine predominates. Its uses for building purposes, and as the base for pulp and paper manufacture are too well known to need description. Numbers of plants are busy in south and southwest Missouri producing pine for practically all its many uses. This region has always been among the leading lumbering sections and continues so today.

Other wood processing industries include barrel-stave manufacture which is especially important, railroad tie production, always an essential industry and wood specialty manufacturing. These, supplemented by production of mine timbers and fence posts from locust and post oak and poles and piling from straight-growing young pines, help to keep Missouri in the forefront as a wood-products state.

Both activity and conservation have been greatly furthered by the creation and maintenance of the State Conservation Commission. The forestry department of the Commission provides a high standard of fire protection for three million acres of forest land, nearly all privately owned. It is planned to expand this fire control program as rapidly as possible to protect an additional six million acres.

A program of forestry education paces programs for protection. The services of the state agricultural colleges contribute to teaching farmers and forest owners, large and small, how to handle their woodlands profitably.



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## TRANSPORTATION

Bus moves along a  
Missouri highway.

Transportation has played a very significant role in the development of Missouri. In the early stages of the state's history, both agriculture and manufacturing within the state were greatly furthered by availability of natural facilities that offered trade channels in practically all directions and to practically all important points.

In the beginning, the great Mississippi and Missouri rivers, extending from the southernmost to the northernmost reaches of the country, and branching through their tributaries far into the east and the west, were the channels that carried Missouri products to centers of trade, and in return brought in luxuries which the frontier regions did not supply.

These mighty waterways were utilized from the very first, with Indian types of craft serving as the first conveyors of passengers and goods. Craft consisted of canoes of birch bark, dugouts from tree trunks, and bull boats made from the hides of buffalo.

As commerce developed, larger boats were built and used. The mackinaw, a flat bottomed boat of forty to fifty foot length, and the keel boat, somewhat larger and capable of carrying as much as seventy tons, were extensively used for transporting furs and agricultural products eastward via the Mississippi or Ohio Rivers. These boats were usually pulled up stream by means of a long rope powered by fifteen or twenty men. At times when the current was not overly swift they were propelled with long push-poles supplemented by oars.

The first steamboat to reach a Missouri landing on

the Mississippi came in 1817. In 1819 steamboats were traversing the full length of that river and on the Missouri were reaching far into the northwest.

With the advent of the steamboat, Missouri towns and cities along the courses of the rivers did a thriving business, and rural industries in their back country reaped a participating share in the prosperity. Even the arrival of railroads toward the middle of the century did not detract immediately from the usefulness of river traffic. For a number of years the two systems worked side by side.

The first railroad incorporated in Missouri, and later built, was the Hannibal and St. Joseph line, laid out in advance to traverse the rich agricultural section north of the Missouri River. Building of this railroad started in 1853.

In the meantime the Pacific Railroad was incorporated, and it took precedence in actual building. Construction was begun on its roadbed in 1851. The first division, extending 37 miles westward from St. Louis, was completed in July 1852. This road reached Jefferson City in 1855.

Another pioneer road, the North Missouri Railroad Company, completed the first section of its line, from St. Louis to St. Charles, in 1853.

By 1860 these and later-chartered lines had completed a total of 796 track miles; by 1865 most of the large systems now serving the state were either in

actual operation or under construction.

The building of railroads resulted in establishment of many new towns, and factories began springing up along all rail routes. Lead, zinc, iron ore, wheat, corn and cattle, along with processed articles from all of these, were now pouring from Missouri into practically all sections of the country.

The spread of railroad trackage in Missouri was very imposing, once building had swung into full pace. In 1852 there were but five miles of track, in 1854, 38 miles, in 1855, 139 miles. In 1860 mileage jumped to 796 and in 1870 to 2,000. From there on, development continued, with 3,965 miles in 1880; 6,142 in 1890; 6,887 miles in 1900; and 6,913 in 1944.

State regulation of railroads began in Missouri in the 1880's. Lessons were learned during those first years of regulation. In an effort to correct apparent abuses, practices were adopted that were so stringent as to prevent a number of railroads from earning an income, or even paying expenses. Some were forced into bankruptcy. Many other states were making the same early mistakes, and Missouri was among the first to realize that unfair regulation was impairing its transportation system, and thereby its general prosperity.

In 1913 the Public Service Commission law was passed, which placed the railroads under the general regulation of an expert public commission appointed by the governor. Corrective measures, which restored adequate intrastate rates and removed needless restrictions, were then put in effect.

The result was immediately improved efficiency. Present trackage, reaching into practically all parts

of the state, is responsible in no small measure for the all-round prosperity of all parts of the state. Local facilities are excellent in all sections, with major railroad centers boasting structures and arrangements that rank with the best in the nation.

Principal rail systems are Missouri Pacific, Santa Fe, Burlington, Wabash, Gulf, Mobile & Ohio, St. Louis & San Francisco, St. Louis Southwestern, Missouri Southern, Katy, Rock Island, Kansas City Southern and St. Louis-Iron Mountain.

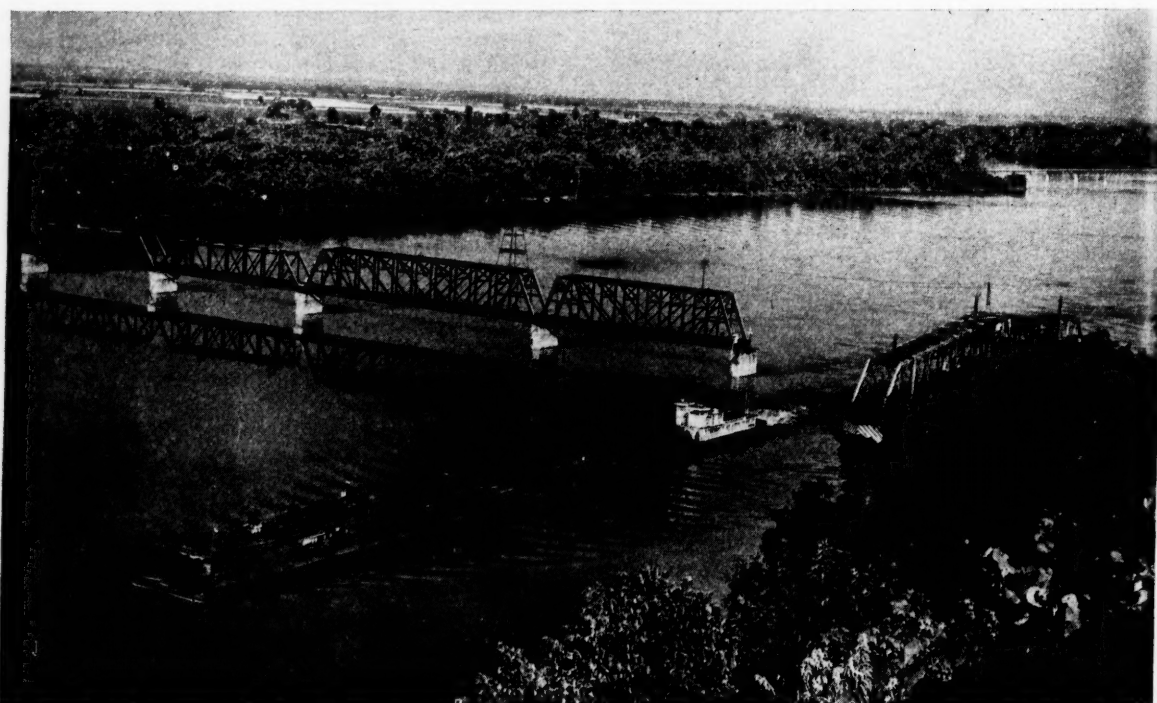
Recent trends have been toward consolidation of lines into systems and this procedure is credited with having brought about a good part of the efficiency now definitely recognizable in Missouri railroad operation. Two of the great railroad terminals of the nation are located in St. Louis and Kansas City.

Highway development paralleled progress in waterway and railway traffic, and went through many transformations before it evolved into the fine system of thoroughfares that interlace Missouri today.

The first roads through the state were merely marked trails. The marking was done by chipping bark from trees alongside the route. One road, so marked and named then King's Trace, is known to the present day as King's Highway. There were no bridges in those early days, and even the Missouri River was forded at certain points in times of low water.

Goods and supplies of the first American pioneers were transported into the region on horses and mules. A group of these animals, so loaded, made up what was known as a pack train. These, in time, were supplanted by wagon trains.

Towboat moving through draw of the Wabash railroad bridge at Hannibal, Mo.



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Fine bridges span Missouri lakes and rivers. This one is over Lake Taneycomo.

Mules or oxen powered the vehicles over the first wagon trails. Six or eight mules or oxen, sometimes more, were used to pull the large heavy wagons that made up caravans moving families from the river landings to new settlements in the back country.

Later on this same type of caravan became the means for transporting goods between Missouri and those portions of the southwest which by then had become settled. Some of the wagons were built large enough to carry 5,000 pounds.

One of the most interesting developments of early Missouri was the inauguration of the Pony Express. This colorful medium of communication and transportation was organized in 1859-60. There had developed by then urgent need for means of getting mail from Missouri and points further east to San Francisco, more rapidly. Mail that reached the far west of necessity had been going by boat around Cape Horn or via boat and land across the Isthmus of Panama. The few stage coach routes then in operation were slow and very uncertain.

The starting point of the Pony Express was St. Joseph, Missouri. Riders carrying mail and light articles went westward from that point; other riders, setting out from San Francisco, rode eastward to meet them. Relay stations were kept ready with fresh horses along the route, and travel was thereby continuous. The first complete trip of the Pony Express was made in ten days.

The first "improved" roads in Missouri turned out to be far from improved. The idea was hit upon to build roads of plank, and for as long as eight years this method was employed for "surfacing" highways. The boards warped and caused a great deal of trouble, and the system was abandoned in 1856.

There was increasing demand, however, for better highways, and little by little road conditions improved. Bridges were built, ferries installed, and macadam came into use. Roadways became reliably passable and traffic of passengers by stagecoach and freight by wagons increased tremendously in volume.

The introduction of automobiles around the turn of the century gave new impetus to road building. Existing highways were extended and new ones built. In 1907 their importance was recognized by appointment of a State Highway engineer as member of the State Board of Agriculture to advise counties in the construction of roads. Six years later a State Highway Commission was created.

In 1920 a state bond issue of \$60,000,000 for highways was voted. In 1921 the Missouri Centennial Road Law was passed, and with it was ushered in the period of modern highway construction that accounts for the present fine status of Missouri roads. Today, over 16,000 miles of state and national highways crisscross the state, and no point in the entire state is more than ten miles from an up-to-date highway. The highway patrol system, inaugurated in 1931, enforces

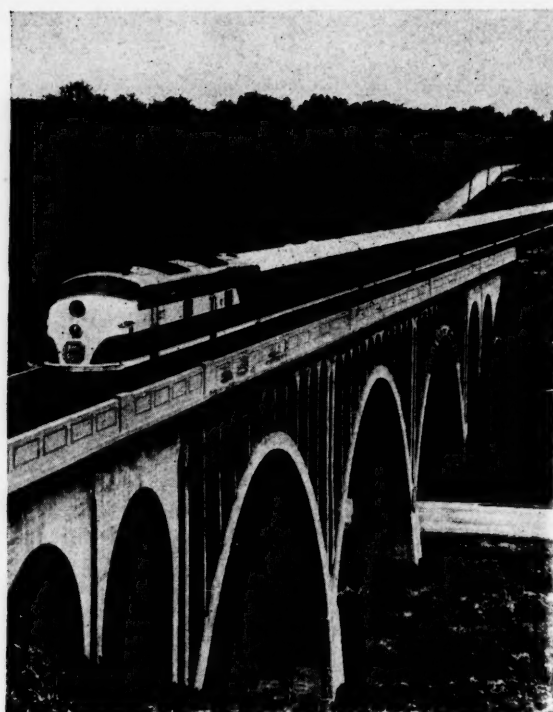
highway regulations and aids motorists in trouble.

Air-minded from the earliest days of flying, Missouri is a natural aviation center for the same reasons that it serves as a hub for other channels of travel and trade. In addition it is relatively free from air traffic hazards such as dangerous air currents and over-high mountains. As early as 1904, the state set itself on record as being among the foremost in airway promotional effort.

Today St. Louis and Kansas City are among the leading airport points of the nation. Each is served by transcontinental lines linking up all parts of the country. St. Joseph, Joplin and Springfield are all on regularly scheduled transcontinental airline stops. Other cities and towns in the state readily avail themselves of similar advantages through utilization of feeder and connecting-line services that radiate from the major centers into practically every county.

Missouri's strategic location from the standpoint of air transportation has long been recognized by the airlines just as it has by the railroads. Before the war put temporary halt to many transportation projects, major airways had already laid plans to establish in Missouri hub centers from which and into which traffic of all parts of the nation would radiate.

Statewide and interstate bus and truck service, together with substantial mileage of electric interurban line, round out the integration of Missouri transportation. The state's low gasoline tax and its reasonable fees for truck operating permits, combined with reciprocal agreements with neighboring states, has greatly furthered the development of extensive truck lines.



The "Southern Belle" crosses a viaduct near Kansas City.

Fresh strawberries start for Chicago by plane. Seven major airlines operate over 11 routes in or through Missouri.





The University of Missouri, showing "columns" which formed portion of the original building burned in 1892. Current enrollment at the university is over 10,000.

## EDUCATION

It is a tradition—"an inherited culture or attitude" as Webster defines it—in Missouri that educated children make the best citizens and money spent for schools are an investment rather than an expense.

Private schools were opened early in Missouri history, the first private boy's school in 1774; the first private school for girls in 1790. Following these were other private schools, church schools, subscription schools to which a number of families would pledge certain amounts, and finally the public schools which today comprise the bulk of the institutions of learning.

Even before Missouri became a state, charters were granted by the territorial legislature for academies which combined some higher education with elementary instruction, and paved the way for high schools and colleges of modern times. New academies were established as the population spread, first along the waterway arteries of traffic, later deeper and deeper within the state.

The academies were generally privately owned, and pupils paid tuition to attend. Sometimes the academy would be maintained by a religious or civic organization. In the early days they were not tax supported, but lost nothing thereby in popularity. For many, many years the opinion prevailed that private instruction was superior to that of a public nature.

A movement for public schools was launched in 1817, and the state constitution of 1820 made, for those days, elaborate provision for such facilities. The

general attitude of the time is reflected, however, in the phraseology of the legislation. One declaration, for example, provided that "one school or more shall be established in each township, as soon as practicable and necessary, where the poor shall be taught gratis." As a result many prideful parents continued to send their children to private schools. This conception has completely disappeared from the school system of today.

The first general law for a public school system was passed by the legislature in 1835 and supplemented in 1839. Those enactments were the foundation for the present system. They provided for state, county and township funds, a state superintendent of schools, and coincided with the plan advanced by Thomas Jefferson for free public education.

By 1843 public schools were established in 42 of the then 77 counties; but even at that time more children were attending private than public institutions. At that time, out of more than 200,000 children of school age, only some 80,000, were attending the public schools.

The transition period of the next 20 years saw a shift in attendance to the public schools, first slowly, and later in great numbers. The state was soon appropriating one third of the general revenue for the public school system, and the school districts in town and rural communities were voting constantly greater taxes for educational purposes. Great progress was made in betterment of school structures, personnel

and curricula. By 1863 more than 160,000 pupils were attending the 4,000 public schools, taught by 6,000 teachers. Encouraging as that seemed to enthusiasts of those days, it is enlightening to compare the situation then with that of today. Now, nearly 700,000 Missouri children attend public schools and they have the benefit of instruction by 26,000 teachers.

Free public high schools came into existence in the state just after mid-century, the first one being opened in St. Louis in 1853. The second was opened in St. Joseph in 1866, and the third in Kansas City in 1867. Today, high schools comprise a substantial proportion of the 9,904 public schools in the state.

State institutions of higher learning had their beginning in 1839 when the General Assembly provided for selection of a site, and the University of Missouri was located at Columbia. The school of Mines and Metallurgy was organized, and located at Rolla in 1871, as part of the State University system. The School of Law, and School of Medicine were established in 1872. The School of Journalism, the first of its type in the world, was set up in 1908. At Jefferson City is located Lincoln University, a state college for Negroes.

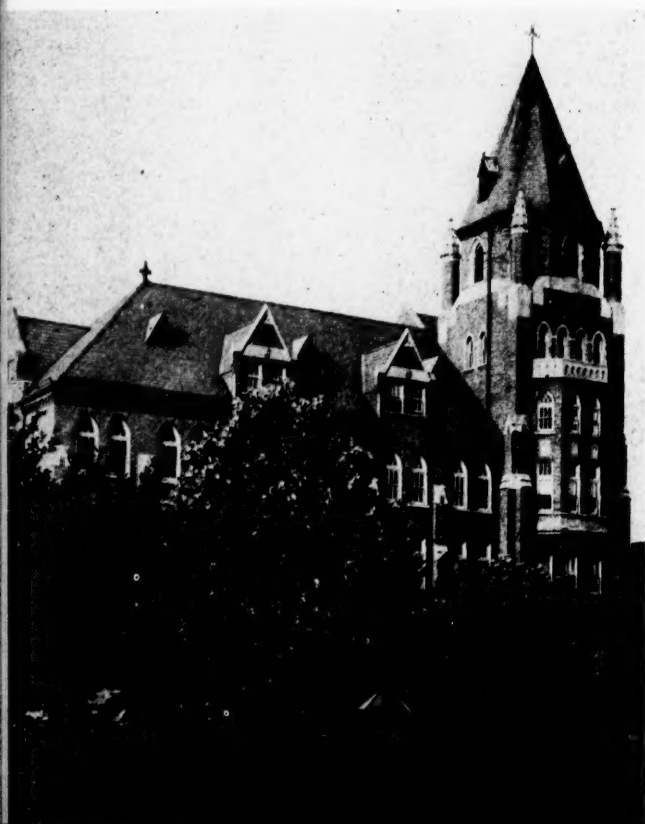
An act to establish teachers colleges was passed by the General Assembly in 1870. The first to be established were North Missouri Normal School, at Kirksville, and the Second District Normal School, first at Sedalia, later moved to Warrensburg, both in that same year. South Missouri Normal School was located at Cape Girardeau in 1873. In 1905, the Fourth

District Normal School and the Fifth District Normal School were established at Springfield and Maryville. In 1919 all of these normal schools were made teachers colleges by legislative act, and given power to grant teacher college degrees.

Junior colleges became part of the state public school system in 1927. A law enacted in that year permits any school district, having a fully accredited high school, to offer a two-year college course. Since that time eight junior colleges have been established, at: Flat River, Jefferson City, Kansas City, Moberly, Monett, St. Joseph, Trenton and Joplin.

The state is also well equipped with privately operated colleges and universities. These include: Washington University, St. Louis; Central College, Fayette; Missouri Valley, Marshall; William Jewell, Liberty; Park College, Parkville; Culver-Stockton, Canton; Kirksville School of Osteopathy, Kirksville; Hannibal-LaGrange, Hannibal; William Woods and Westminster at Fulton; Lindenwood, St. Charles. Stephens and Christian colleges, Columbia; Chillothe Business College, Chillicothe; Southwest Baptist College, Bolivar; Drury College, Springfield; Kemper Military Academy, Boonville; Missouri Military Academy, Mexico; Tarkio College, Tarkio; Wentworth Military Academy, Lexington; Webster College, Webster Groves; College of Teresa, Kansas City University and Rockhurst College, Kansas City. School of the Ozarks, located at Point Lookout in the Shepherd of the Hills country, and sponsored by industrial and financial leaders, makes it possible for underprivileged students to obtain an education. The school maintains a cannery, dairy, printery and various agricultural plants in which students may work part time.

School of Commerce and Finance at St. Louis University.



## Welfare and Health

Missourians believe in helping the unfortunate. A school for the blind was organized in St. Louis in 1855 by a group of private citizens. It was taken over by the state soon after. In addition to usual courses there is a kindergarten in this school. Pupils are taught knitting, crocheting, cooking, rug weaving, sewing, basket, chair and broom making, piano tuning and reed and fiber furniture making.

About the same time the school for the blind was organized those afflicted with deafness were accorded consideration through a school set up at Fulton. Pupils there are taught elementary school subjects through the eighth grade. A vocational department offers additional instruction in such arts and professions as baking, barbering, carpentry, beauty culture, dressmaking, home-nursing, painting, decorating, linotyping, printing, shoe rebuilding, tailoring, and diversified office procedure.

In 1899, a school was established at Marshall for the feeble minded and epileptic. Specially trained teachers in this school give instruction in sewing, domestic science, music, manual arts, physical culture and a number of related subjects. In addition, regular grade school instruction is given in the same subjects taught in the public schools.

There are a number of state hospitals, the first of

which at Fulton, accepted patients in 1851. Others are: State Hospital No. 2 at St. Joseph; State Hospital No. 3, Nevada; State Hospital No. 4, Farmington; Missouri State Tuberculosis Sanatorium, Mt. Vernon; Ellis Fischel State Cancer Hospital, Columbia; Missouri State Trachoma Hospital, Rolla.

Institutions of correction are the Training School for Boys, Boonville, and the Industrial Home for Girls, Chillicothe; also the Industrial Home for Negro Girls, Tipton; the Intermediate Reformatory in the vicinity of Jefferson City; and Missouri State Penitentiary, Jefferson City.

Several improvements in educational administration were effected in the new constitution adopted by the people of the state in 1945. Among new provisions was one providing that the state board of education be non-partisan, with not more than four members, out of a total of eight, belonging to the same political party.

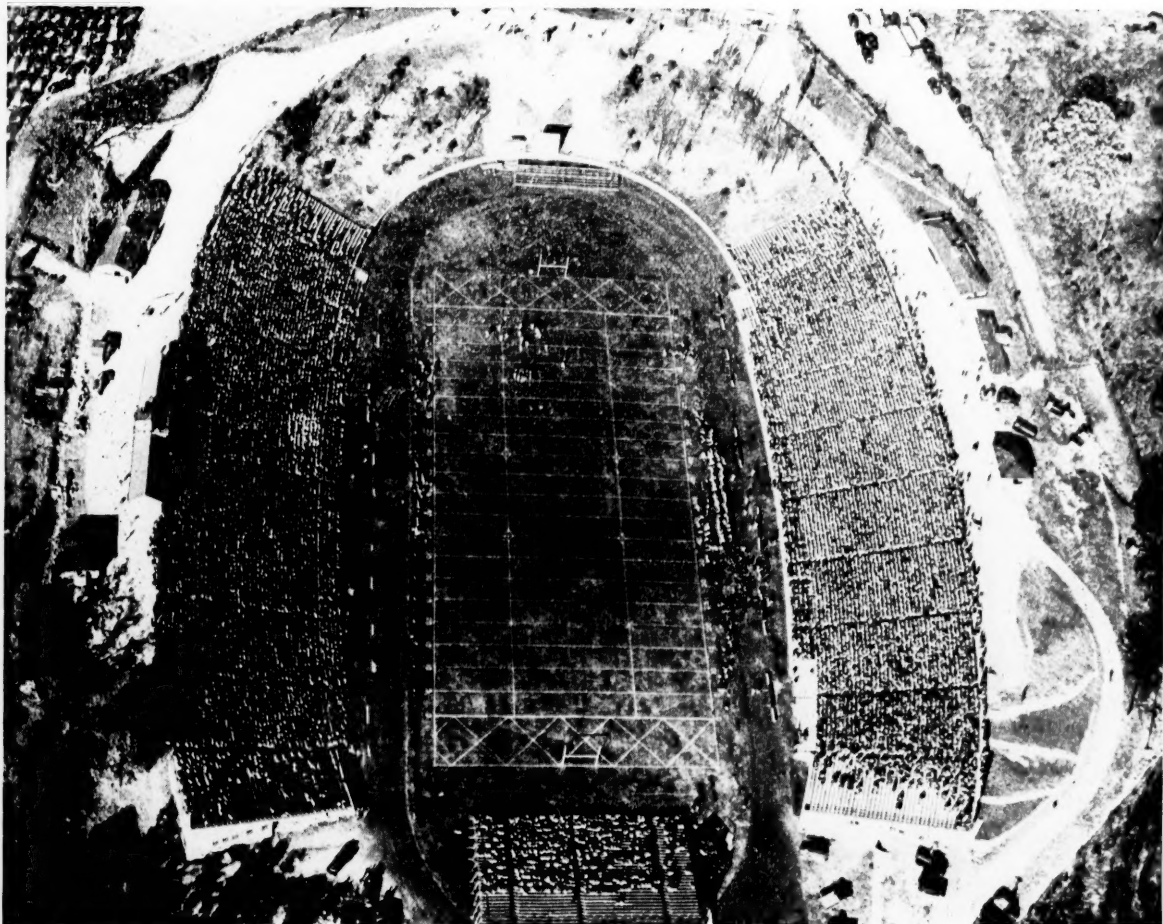
Another new provision directed that investments belonging to county school funds be reinvested in United States bonds or other securities of guaranteed soundness.

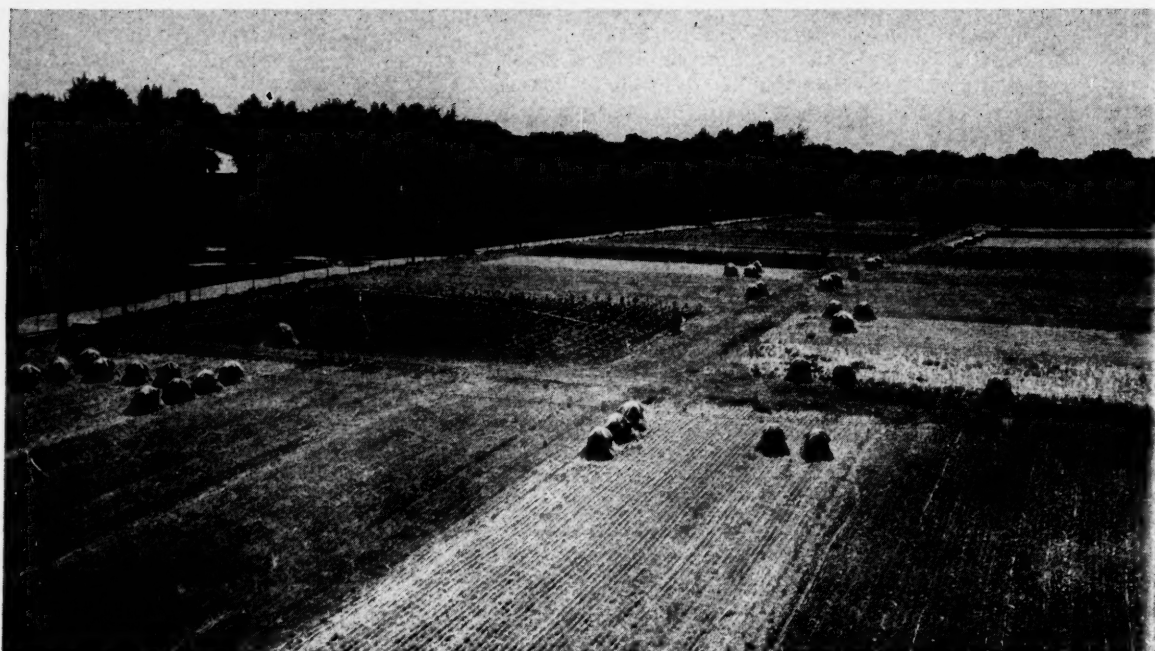
Still another declared in favor of state aid to local libraries, with the purpose of promoting and extending the establishment of free public libraries.



Washington University.

Football at Columbia, Mo.





Sanborn Field at the University of Missouri experimental station, was established in 1868, and is one of the three oldest of its kind in United States.

## RESEARCH

Hand in hand with industrial and agricultural development in Missouri has marched an ever increasing interest in research.

Having as it does both the raw material and processing facilities essential for manufacturing, it is natural that the state's attention should have been directed toward making the best possible use of each. Research, therefore, is not new to Missouri business, nor to the state's educational institutions.

For many years manufacturers in the state have been sedulous in the matter of maintaining full scale laboratories, staffed by competent personnel and equipped with the latest known apparatus for carrying out experimental procedures.

The chemical industry of which Missouri is favored with a bountiful share, and which consists in the main of unusually large and well established companies, has been especially active in promoting and carrying out scientific investigations, and the successful results of these efforts are widely recognized throughout the country.

Many of the most important chemical discoveries have been made in Missouri laboratories; many new and important aids and comforts for mankind have followed in the wake of these discoveries.

Other industries also have been alert to new product and process development. Far-reaching steps have been taken, for example, in the food processing division of industry, with quick freezing methods in the forefront of new developments. It is predicted that these in years to come will virtually revolutionize

past procedures in preparing and marketing foods, and will make available, to consumers in regions distant from original source of supply, edibles and delicacies with natural freshness which hitherto have been suppliable chiefly in preserved form of one kind or another.

Ozark strawberries, for instance, quick-frozen at point of origin and delivered to New York tables as if covered with their natural morning dew are a definite possibility.

On Missouri soil also are institutions of even wider scope than those maintained by individual units of industry. Midwest Research Institute of Kansas City and the Research Institute of Washington University, St. Louis, were organized and are now firmly established to supplement all other experimenting facilities and to extend the benefit of their accomplishments not only to Missouri enterprise but also to enterprise of surrounding areas.

The funds of both institutions, originally contributed by small numbers of public spirited Missourians, have been expanded enormously and the building and equipment facilities of both institutions have been greatly augmented.

The trustees of Midwest number over 100 and represent agriculture, industry, commerce, the professions, education and the press. The broad objective of the institute is to serve individuals, companies and associations of manufacturers in all their research problems. The scope of the Washington University program is equally broad and both institutions stand

high in rank among the leading research undertakings of the nation.

One of their most important objectives lies in the offer to small manufacturers and business men of unsurpassed investigative equipment at nominal expense and without the investment that would otherwise be required for individual laboratories.

To illustrate the wide coverage of subjects which these institutions explore, reports of recent experimental projects carried out by them are enlightening. Among these are included ammonium nitrate coatings, beverages, bottle closures, breakfast cereals, cleansing compounds, coal uses, coffee, condiments, communications equipment, dehydration of forage crops, fermentation chemicals, fertilizers, film-forming compounds, fungicides, glass products, grain sorghum products, hot water heaters, inert gases, magnetic tape sound recorders, magnetic wire recorders, microbiological culture methods, natural gas reaction, non-fuel uses of natural gas, oil-carbon solvents, oil-well logging, parking meters, secondary aluminum, vitamins and vitrified clay.

Projects are carried out under the sponsorship of industrial concerns, some of which are among the best known in the country.

The colleges and universities of the state contribute ably to the cause of science, and supplement with their modern laboratory equipment and zealous student eagerness the work carried on by business organizations. Most of the institutions of higher learn-

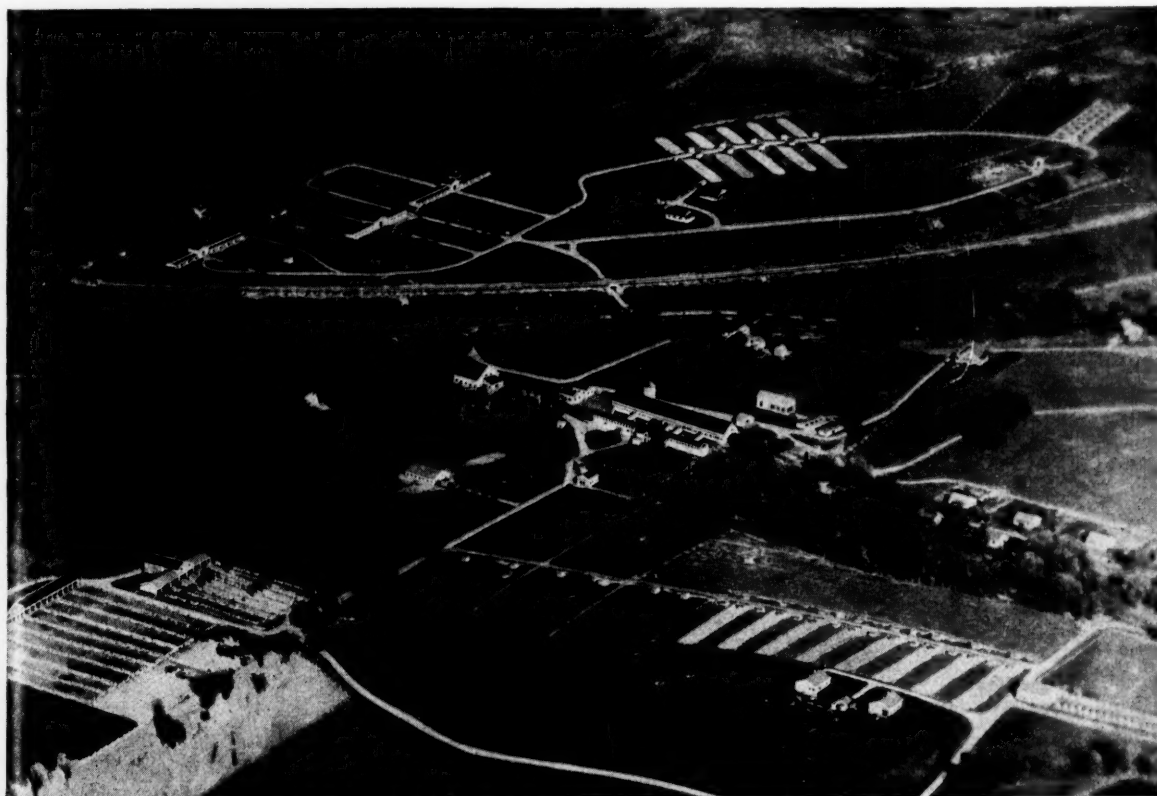
ing are now equipped with the most up-to-date instruments used in industrial research, and all have come to learn the importance of this branch of their activities.

To the value of discoveries made in the colleges and universities must be added the untold advantages that accrue from this type of training in its impact upon those who take part. From the portals of these colleges will pour a stream of young scientists, young men and women, already trained in scientific experimentation and ready to take their places in the ranks of veteran investigators, the dearth of which is widely recognized.

Among state institutions the School of Mines and Metallurgy at Rolla is especially mentionable inasmuch as it has been selected by the U. S. Bureau of Mines as the seat for one of its most important national branches. There great numbers of experiments are under way bearing on utilization of natural resources. In many instances these will pave the way, and in many others supplement, the accomplishments made by the other investigative institutions.

In the aggregate the research institutions are applying scientific experimentation to the purpose of obtaining greater industrialization. To this end a wide variety of objectives is being kept in view. Such things are taken into consideration as decreasing the length of time and amount of work involved in removing one type of implement from a machine and installing another.

Largest private experimental farm in the world at Gray Summit, Mo.





Missouri's State capitol is built of Missouri marble, and is an architectural show place of the state.

## GOVERNMENT

The capital and seat of government of Missouri is located at Jefferson City.

In 1945 the people of the state adopted a new constitution replacing one which had been in effect since 1875. Among new measures adopted was one denying the right to commissions, boards or other administrative agencies to impose fines or imprisonment as punishment for violation of its regulations. Another established the right of employees to organize and to bargain collectively. Other new provisions were for the purpose of bringing Missouri law in line with recently adopted procedures in national government.

Structure of the state government was left basically unchanged. Legislative, executive and judicial departments were retained as separate and independent divisions of government.

Missouri has the bi-cameral or two-house legislature, and subject to future apportionment changes; the senate consists of 34 members, and the general assembly of 154 members.

Senators must be over thirty years of age and are elected for four-year terms of office. Representatives in the general assembly must be twenty-four years old or over and are elected for two-year terms.

The executive department consists of all state elective and appointive officials except those of the legislative and judicial departments. In addition to the governor, chosen for four-year term, the executive branch of government includes lieutenant governor, state auditor, secretary of state, attorney general, state treasurer, department of revenue, department of education, department of highways, department of conservation, department of agriculture and a number of boards, bureaus, commissions and other agencies.

Supreme court judges, numbering seven, are elected for twelve years.

There are 114 counties in Missouri and the City of St. Louis which is not a part of any county. County governments are either of the county judge type of organization, where the presiding judge and two district judges compose the governing body, or of the township type.

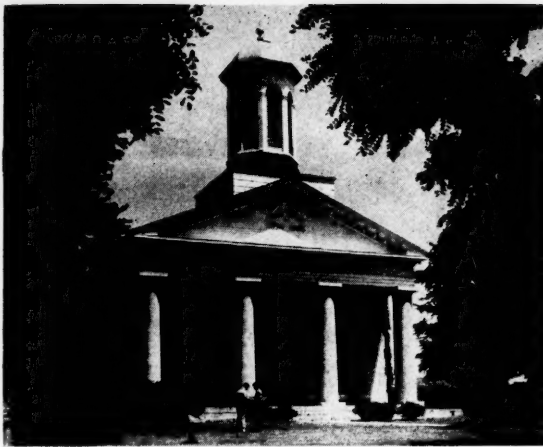
Elected officials of counties generally consist of the presiding judge of the county court, district judges, probate judge, circuit court clerk, county court clerk, recorder of deeds, prosecuting attorney, sheriff, collector of revenue, assessor, treasurer, coroner, public administrator, county surveyor, highway engineer,

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Missouri



Typical county courthouse in Missouri.

superintendent of public schools, and state representative.

Under the new constitution, counties having more than 85,000 inhabitants can adopt their own form of home-rule government. The new constitution allows such counties to draft and adopt their own charters and, within specified limits, determine their form of government.

Provisions for Initiative and Referendum procedures contained in the previous constitution were retained in the new. By virtue of these, petitions embracing proposed laws, proposed changes in the constitution, and opposition to proposed enactments are capable of bringing about a public vote on such questions when duly signed by the stipulated number of petitioners.

Missouri state seal. The plaque was made from Missouri mined silver.



JANUARY NINETEEN FORTY-SEVEN

## FINANCE

The state has made provision for sound financial structure. Present state debt consists of considerably less than \$100 million and substantial retirements have constituted the policy in past years. Virtually the entire amount of indebtedness is backed by the full faith bonds of the state. Moreover, by far the greater portion of outstanding debt consists of road-bond indebtedness payable from pledged gasoline and motor vehicle taxes.

Resort to oppressive taxation has not been necessary to maintain a high state of solvency. Per capita taxation of all kinds in 1944 amounted to \$29.92 against the national average of \$39.99. Government operation cost was \$18.70 per capita, not including aid to local government or debt servicing. These two latter amounted to \$5.51 and \$2.79 respectively per capita.

Breakdown of revenue receipts for 1944 illustrates the proportion of taxation borne by the various segments of the state economy. Total taxes in that year, exclusive of payroll assessments, totaled \$84,704,000. Making up this amount were: sales, use and gross receipts assessments, \$52,152,000; license and privilege taxes, \$14,998,000; individual and corporation income taxes, \$11,302,000; property taxes, \$4,559,000; gift and death taxes, \$1,693,000.

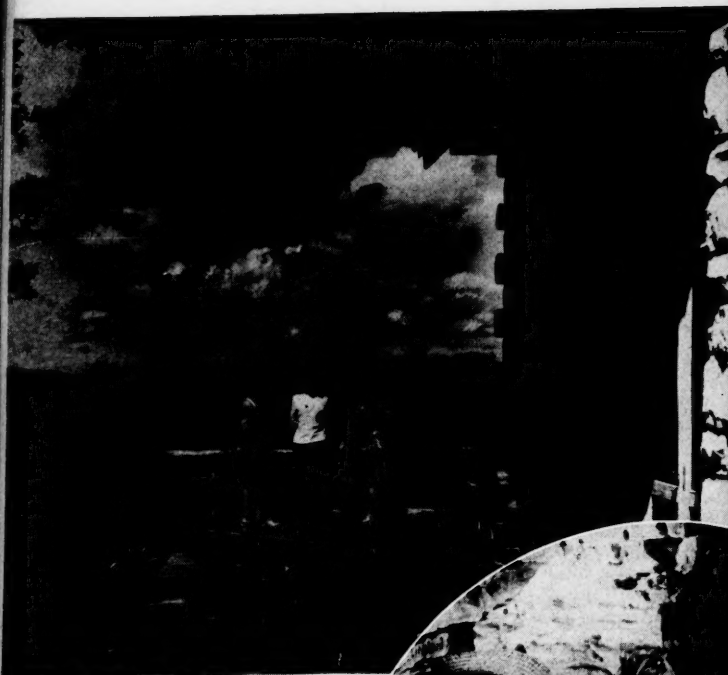
Banks in the state, like the state government, are also in sound condition, as they have been since that early period following the establishment of the Bank of Missouri which was chartered in 1837. Before that time, conditions are interesting more for their lack of financial structure than for their excellence. There was little metal money in those days, and little was needed. Furs were traded for lead, tobacco and similar items. Farmers traded cured hams, eggs and butter for sugar, wearing apparel and other shipped-in commodities. Taxes had to be paid in money, and most land transactions were for cash, but taxes were low and land was cheap.

Not long after the establishment of Missouri's first state bank, branches of this institution and other banks, privately owned, began to put in appearance and banking progress developed the banking structure that exists in the state today.

As of December 30, 1944, there were in Missouri 80 national banks with total deposits of \$1,476,169,000, capital \$28,244,000, surplus and undivided profits \$49,062,000 and aggregate resources \$1,549,720,000. There were also 514 state bank and trust companies with total deposits of \$2,031,000, capital \$57,121,000, surplus and undivided profits \$60,425,000 and aggregate resources \$2,170,598,000.

Life insurance in force at the end of 1944 totaled \$4,132,086,000; and new insurance written during the year amounted to \$626,076,000. Assessed value of taxable property in 1944 was \$4,126,415,000.

In the calendar year 1944 Missourians contributed to national government revenues as follows: corporation income tax \$480,124,966; individual income tax \$365,798,982; miscellaneous internal revenue \$161,414,126; payroll taxes \$50,327,400; total \$1,057,665,474.



Above—View from porch of a private lodge on Lake of the Ozarks just above Bagnell dam, showing part of Horseshoe Bend.

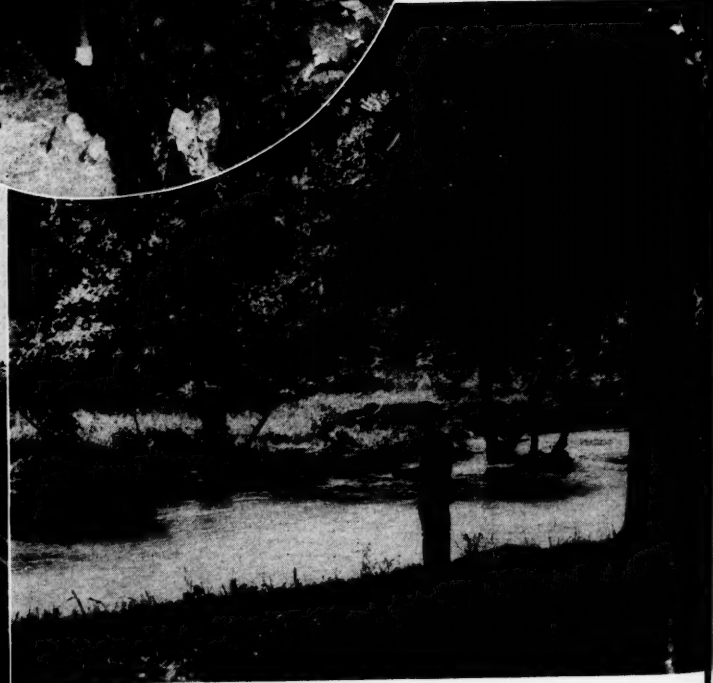
Circle—In Mark Twain's cave south of Hannibal.

Below—Mark Twain memorial on banks of the Mississippi River near Hannibal.



Above—Catch from one of Missouri's many clear streams.

Below—Angler testing his skill on an Ozark stream.



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Right—Top—Picturesque Bluff drive near Noel, Mo.

Right—Middle—Ash Cave, one of the more than 240 recorded caves in Missouri.

Right—Bottom—Missourian maids astride horses from breeder's barns near Clinton, Mo.

## RECREATION

As nature's gateway from the north to the south and from the east to the west, Missouri is well equipped to welcome visitors. Tourist and recreational facilities are many and varied.

Missouri's Ozarks, a land of untold age, is a region of natural wonders and wonderful nature. Multitudes of clear lakes and streams, inviting woodland, picturesque hills, magnificent caves, and numberless springs of capacity almost beyond belief, all conspire to lull wearied visitors into forgetfulness of their worries, and to engender new thrills for those intent on pleasure.

Less majestic, but inspiring in other ways, other parts of the state afford scenery and attractions comparable with those of other states, and along with natural characteristics, offer interspersed relics of historic value and man-made playgrounds of modern design. Modernized parks and well-equipped playgrounds for all kinds of sports provide a touch of convenience that teams well with the beauties of nature.

A trip through the state will afford the tourist many scenic and informative treats.

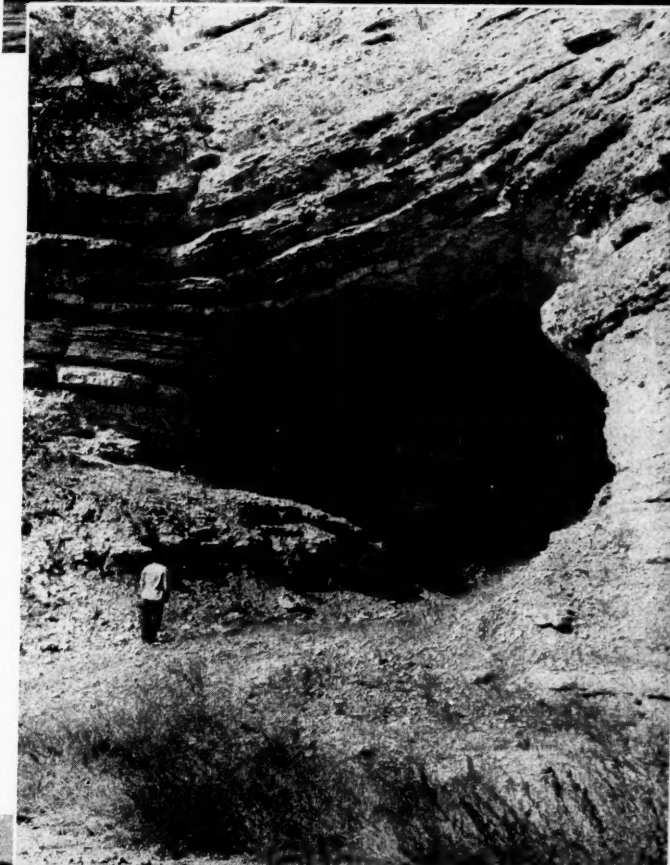
Starting out, for example, from St. Louis, that city itself, one of the oldest in the United States, has many points of interest to offer. Among these is Forest Park, one of the most beautiful city parks in the nation; and Babler Memorial Park, about 20 miles from the heart of the city, out what is known as Horse Creek Road. The latter, with its spring, heavily wooded creek and facilities for their enjoyment, consists of 1,874 acres.

From there it might be well to swing northward along the course of the Mississippi, and into country north of the Missouri; then across the state to its western border; southward into the southwest; and thence back across hills and woodlands to the Mississippi once more.

Northward from St. Louis the route will be along wooded bluffs that overlook the river and afford a splendid panorama of the stream itself and of areas of far distance on the opposite banks.

Not very far north, Lincoln County will be entered and there will be found Cuivre River Park, a beautifully wooded area of 5,790 acres. The Cuivre River with its high bluffs and wooded valley adds much to the enjoyableness of this playground which was originally conceived as a family recreational center for the benefit of families living in crowded cities.

Monroe County is a bit to the north and west. There is located Mark Twain Park of 138 acres, containing the old house in which the noted humorist and writer



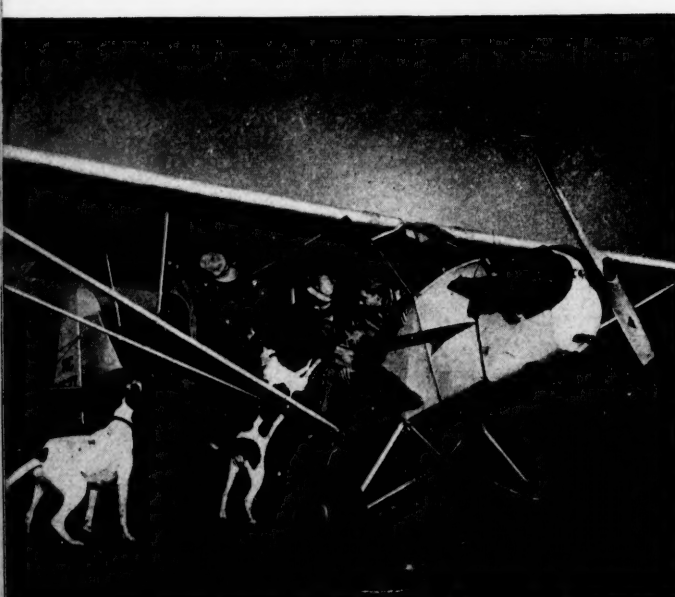


Left—Top—Foxhunting is a Missouri institution.

Left—Circle—Lake of the Ozarks in Central Missouri is 129 miles long.



Left—Bottom—Loading strips and airports in Missouri recreational areas afford the sportsman opportunity to reach his destination.



was born. A permanent shelter has been built over the house to insure its preservation.

Travel thence across the state will be through some of the finest grain and pasture lands in the country, and in the northwest corner of Missouri the traveler reaches a region noted as a mecca for duck hunters.

Southward from there, along the course of the Missouri River, the route will pass through St. Joseph, another pioneer city with many spots reminiscent of early history and yet one of the most modern of American cities. South of St. Joseph, in Buchanan County is Lewis and Clark Park, 138 acres adjoining the 100-acre Sugar Lake, with boating and fishing facilities, foot trails and play field.

Wallace Park in Clinton County, next county eastward, consists of 120 acres and is of historic interest. It is located on the Old Mormon Trail and is in the heart of a section where religious warfare once flared temporarily into actual military intensity. A ten-acre lake adds to attractions.

Southward and westward lies Kansas City and on the way there will be encountered Excelsior Springs, a mineral spa of wide reputation.

Kansas City itself, now one of the country's leading industrial and transportation centers, like other Missouri cities contains a great deal that is of historic interest. Along with St. Joseph it was once either terminus or waystop for many of the overland trails that branched in early days from Missouri far into the west and southwest. Among those early day highways were the Oregon Trail that wound its way into the northwest extremity of United States territory, and the Santa Fe Trail that extended 750 miles through Oklahoma, Texas and New Mexico.

In Saline County, to the south and east of Kansas City, is one of the state's smallest parks, and at the same time one of the most historically interesting. Arrow Rock Park contains only 35 acres situated on a high bluff overlooking the Missouri River from the south. In the little village adjoining the park is a tavern built in 1832 of brick made by slaves. In front of the tavern is a stone that served as an auction block from which slaves were bought and sold. A jail built in 1829 stands close by. It is said that the tavern has never been closed to the public through all 117 years of existence. The Santa Fe Trail ran past this tavern, and Kit Carson together with other noted pioneers took lodgings in the tavern when traveling along the trail.

Also in Saline County is Van Meter Park, containing 506 acres. It is a natural nesting site for water fowl and has been developed and improved for this purpose. It is also a favorite vacationing spot.

The southwest corner of Saline County adjoins

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Johnson County and within the latter is Montserrat Park. This is a regional recreational area of 3,500 acres. Although in a still largely primitive condition, it is attractive for that very reason and affords inviting trails over splendidly wooded hills and through valleys interspersed with streams.

By now the traveler will have had a good picture of the rolling prairies and uplands of the northern half of the state. What lies ahead is a profusion of scenic delights, so numerous and widely dispersed that it becomes difficult to know what way to turn first. Closest in distance perhaps and probably taking in the greatest area is the Lake of the Ozarks region.

This region, lying near the center of Missouri, was formed by impounding the waters of the Osage River. The body of water formed thereby is one of the largest wholly artificial lakes in the United States. It stretches for 129 miles in length and its shoreline perimeter, broken by numerous coves, is 1,300 miles in extent. The shoreline is wooded with oak, hickory, elm and other varieties of shade-rich timber. The entire region takes in 95 square miles. The lake affords excellent fishing of catfish, bass, crappie and pike. Recreational centers and numerous concessions contribute their share toward making visitors happy and comfortable.

Nearby Dallas and Laclede counties share Bennet Spring Park, one of the oldest parks and one of the most popular. Containing 574 acres of the two counties it is made up largely of ridglands along the Niangua River. One of its principal features is its

spring, one of the largest of a number of large springs in the state. This spring has the extraordinary flow of 71,000,000 gallons daily. The water is crystal clear and issues from a circular basin about five feet in diameter in a gravel bed. About a mile from its source the water joins that of the Niangua River. Some hold the belief that this spring marks the emergence point of an underground river.

In the southwest section of the state Barry and Stone Counties embrace the Table Rock unit of National Forests. This unit consists of 247,420 acres. In Barry County also is Roaring River Park, a 2,600-acre tract which at the same time is one of the most naturally beautiful and most highly developed of the state parks. One of its main features is Roaring River Spring which issues from a cave and flows through an artificial lake into Roaring River. The spring has a flow of 18,000,000 gallons daily. In addition to fish hatcheries, excellent facilities for trout fishing and accommodations for swimming, the park has trails for hiking and riding through forested mountains that present many interesting caverns.

Within short travel distance from Roaring River is Lake Taneycomo, created by a dam across the White River at Forsyth. This lake, the second largest in the state, covers 2,500 acres.

Eastward of Stone County lie Christian, Taney, Douglas and Ozark counties in a square formation that embraces two National Forest units, Pond Fork and Gardner. Pond Fork Unit consists of 163,720 acres; Gardner Unit, 253,440 acres. Green County to

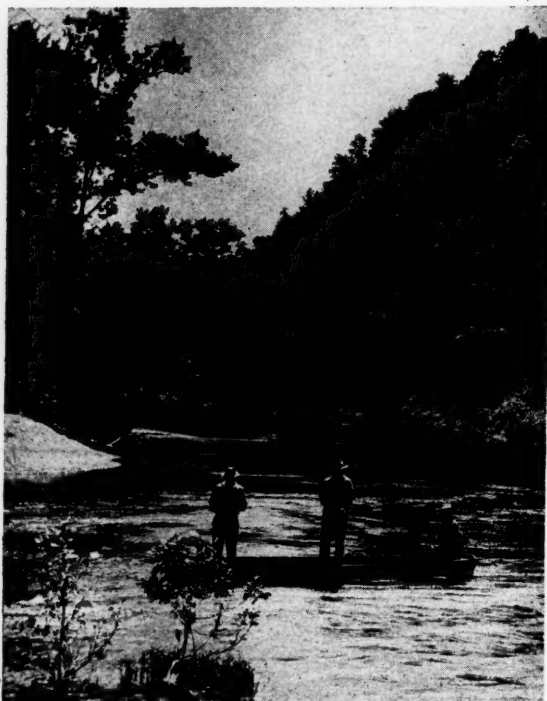
Sportsmans Park, St. Louis, home of the 1946 baseball champions.





Sternwheeler on the Mississippi River off the Missouri shore.

Floating down an Ozark stream.



the north of Christian is the location of Sequiota Park, one of the smaller parks, containing but 14 acres. Its small area, however, is packed with interesting features including a cave, fish hatchery, an aquarium and an underground stream.

Northeastward, three units of the National Forests present hundreds of thousands of acres teeming with wild life and scenic value. Gasconade Unit takes in parts of Laclede, Wright, Pulaski and Texas counties to the extent of 308,640 acres. Fristoe Unit, lying within Shannon, Carter, Oregon and Ripley counties, contains 236,520 acres. Clark Unit is made up from the counties of Washington, Crawford, Iron, Reynolds and Dent.

Some of these counties contain parks in addition to their areas of national forest. Shannon County has Alley Spring and Round Spring Parks. Alley Spring, with 427 acres, is built around its spring which flows from the base of a jagged cliff, then over a dam which formerly powered an old grist mill, and finally into Jack's Fork River half a mile away. The dam forms a clear lake and this, together with timberland, caves and facilities for fishing and camping, make it an attractive outing spot. Round Spring emerges from within a high circular basin, 80 feet across and bordered by a rock wall 30 feet high. It flows at the rate of 18,000,000 gallons daily and empties into Current River. The park formed around it and containing 76 acres is given over principally to fishing and swimming expeditions.

In Washington County is Washington Park, a tract



Above—Thousands of hunters move into Missouri fields in the autumn.

Below—View of Missouri from Signal Point, above Joplin, Mo.





Missouri is well-equipped with golf courses.

of 694 acres covered with cedar forest. An interesting feature of this park is its petroglyphs, or pictures formed in the rocks. Deer Run Park in Reynolds County is a large area of better than 10,000 acres, chiefly forest. Primarily it is a game preserve and reforestation project. Of comparable area, and also principally forest, Indian Trail Park in Dent County serves likewise as a game preserve and harbors numerous wild turkey and deer. As its name signifies it was once a popular Indian hunting ground.

Montauk Park, also in Dent County, is noted for its trout fishing. Current River, one of the swiftest streams in the entire South, rises from a spring in the center of this park. Bordering Washington and Crawford Counties on the north is Franklin County

with its Meramec Park of 7,124 acres, many springs and at least 20 caverns. St. Francis Unit of National Forests lies to the southeast, and near the Mississippi River on the state's eastern boundary.

In Carter County is Big Spring Park. As the name suggests, the principal feature of this 4,576-acre tract is the largest of many large springs in Missouri. This one is truly gigantic.

One other park remains before the tour of the state comes to an end. Big Tree Park lies near the southeastern tip of the state. It is a forested park of 1,000 acres in Mississippi County. Among numbers of large trees it boasts one exceptionally great oak, claimed to be the largest in the state. This park is still in the primitive stage.

Roaring River State Park in the foothills of the Ozarks.



# SOUTHEAST MISSOURI

*great lead, glass, cement and  
lime producing area  
invites allied industries  
to locate here  
and use its*

## **ABUNDANT NATURAL RESOURCES:**

*silica sand... lead... iron ore...  
cobalt... dolomite... limestone*

## **AND THESE NECESSARY FACILITIES:**

*interconnected hydro and steam  
electric power...  
high pressure natural gas  
distribution...  
rail, highway and river  
transportation*



**MISSOURI NATURAL GAS CO.**

## **Industrial Garden**

*(Continued from page 83)*

agement. Lawns were laid out, rocks were hauled in for a rock garden and miniature lakes were dug. A bower of rustic beauty was built around a utility shed. Soon the plant began to look more like a park than like an industrial institution.

So pretty were the grounds that two employees of the factory asked for and received permission to hold their wedding on the yard. For a few brief moments one day the employees laid down their tools and stepped out on the yard for the wedding. Then they slipped back into their overalls and returned to the grim business of making tools for war.

With the cancellation of war contracts the company converted to household appliances. During the months when the plant had a minimum of employees for maintenance and retooling, the yards were as carefully tended as they had been during the peak of production.

Now the plant has 500 employees busy turning out several types of tanks, floor furnaces, water heaters and attic fans. Soon there will be about 1000 employees working on some twenty items that are planned for production in the near future.

It will very probably never be safe again for the workmen's wives to let them go to work without watching them, for these men have been known to slip the shovel from their tool shed and cart off some of their home shrubbery to the plant. Such is their intense pride in the beauty and success of this project.

## **Kansas City Southern Program**

*(Continued from page 85)*

bridge and raising the track approach from the south about three miles, are being done by the Kansas City Bridge Co. Completion is part of the program.

K. C. S. port facilities at Port Arthur are likewise in the process of enlargement and modernization at a cost of about \$255,000. The company recently completed and placed in operation dumping and conveying equipment that transfers coal from cars to ships at the rate of 800 tons per hour. Also under construction at Port Arthur, for completion in 1947, are the latest facilities for transferring grain from the company's elevator to the holds of ships.

## B. & O. Streamliner

(Continued from page 84)

with the red, blue and green upholstery of the seats. The other two are the baggage-buffet-lounge car at the forward end and the combination diner and observation car with its rounded rear and its unobstructed view placing a new meaning on the word "observation." All cars are 80 feet long.

Wide non-fogging windows, venetian blinds moving with finger-tip control, doors operating almost as easily, adjustable foot rests, fluorescent general lighting, individual reading lights, spacious luggage racks, soundproof nursery and sanitary washrooms are all aimed at the highest comfort for the passenger as he sits or reclines at the touch of a button in the roomy seats that give club lounge chair comfort.

A reserved seat train, the Cincinnati's three coaches have a seating capacity for 176 passengers. The two extra cars contain in addition 68 seats of the lounge variety. These are for the further comfort of the

coach passengers and will not be sold. Sixteen of the over-stuffed chairs and serving tables for eight passengers are part of the buffet-lounge feature.

Hot plate meals, as well as sandwiches and drinks will be available to passengers, who may also eat in the dining car section just forward of the observation lounge. Twenty-three diners can be accommodated at one time. The adjoining kitchen is equipped with stainless steel fixtures.

The Cincinnati is a twin train. One will leave Baltimore at 8 a. m.; the other, Cincinnati at 8.45 a. m.; the two crossing paths enroute. Powerful Pacific type steam locomotives will pull the trains across the steep slopes of the Allegheny mountains. Four such units are available. They are nearly 100 feet long, weigh 713,500 pounds and can develop a top speed of 100 miles an hour. A special whistle roaring with the sonority of a boat whistle will identify the two Cincinnatians.

The train is roller-bearing equipped from engine to observation

car to insure smooth riding. Rubber insulated trucks minimize vibration and noise. Exterior coloring of the train is B. & O. royal blue and gray, with polished aluminum trim. "The Cincinnati" and the circled capitol trademark of all B. & O. trains are strategically placed on both the cars and front and rear ends.

Cars of the Cincinnati, as well as the locomotive work, are the product of the Mount Clare shops of the Baltimore and Ohio at Baltimore. Both the streamlined bullet nose of the locomotive and the rounded end of the observation car are huge castings. Several thousand B. & O. workers, and many of the road's engineers and specialists participated in the project which B. & O. officials decided to go ahead with to facilitate inauguration of the new service at the earliest possible time. (S.A.L.)

## Santa Fe Diesels

(Continued from page 84)

protect fragile cargo.

High efficiency refrigeration units have been engineered, designed and fabricated by the Douglas Company

# F. C. TAYLOR FUR COMPANY

NELSON R. DARROUGH  
*President*

SAINT LOUIS 2

MISSOURI

for installation early in 1947. A moveable insulated bulkhead is provided so that two temperatures may be maintained in flexible cargo space areas. Control panels have been rearranged for simplified handling following the recommendations of Skyway Operations Manager J. F. Davidson who managed American Airlines' Trans-Atlantic contract operations during World War II.

Among the unique features of the new F-3 General Motors diesel locomotives is that each engine is rated at 1500 horsepower, which is an increase of 150 horsepower over preceding models built by this manufacturer. The majority of the engine parts are interchangeable with equipment previously in service. As a result these locomotives have, for the first time, a generator that produces both alternating and direct current in the same machine. The generator produces sufficient alternating current to operate accessories and auxiliaries and still produce the rated horsepower, 1500, in direct current for train propulsion. It is the only locomotive of any type in which auxiliaries and accessories are driven by separate alternating current motors.

The Diesel engine-cooling systems have been re-designed with a slight increase in cooling capacity and all cooling fan V-belt drives eliminated. This is accomplished by the use of four alternating current, motor-driven cooling fans which are automatically controlled to regulate the engine temperature cycled in such manner that the work is equally distributed between each of four fans.

Traction motor blower V-belt drives have been eliminated and blowers are driven by alternating current motors, the power for which is generated by an alternator built into the main generator.

The engineer's cab has been enlarged, and equipped with an automatic electric water cooler for drinking water for use of the engine crew.

Each Diesel engine is equipped with an electro-hydraulic governor control having automatic protection built into it to guard against low oil pressure and excessive vacuum on the coil pumps, which provides better protection to the engines for preventing lubrication failures.

## South's Peacetime Construction Record

(Continued from page 73)

building, \$21,162,000 for highways and bridges, \$14,824,000 for engineering projects and \$9,415,000 for public building. Commercial buildings outranked the private residential valuation during the month. Public housing has dwindled to insignificance.

The year's highest monthly total was recorded in April. Southern awards amounted to \$214,494,000 in that month when highway awards totaled \$51,871,000 and engineering contracts totaled \$56,751,000. Both were high points for the year. Private building was also strong and led to the peak period in the two succeeding months.

Other monthly valuations, in the order of importance, were: July, \$181,845,000; May, \$169,600,000; October, \$163,884,000; November, \$150,933,000; March, \$144,411,000; June, \$143,844,000; August, \$138,989,000; February, \$130,049,000; September, \$119,552,000 and January, \$100,950,000.

June saw the highest valuation in private building. The total for such work in that month was \$56,143,000 and was closely followed by the \$56,069,000 of the preceding month. The

two months, with July when private building was valued at \$48,184,000, represented the peak of the year.

Industrial awards, as reported to the *Daily Construction Bulletin* of the MANUFACTURERS RECORD, were strong toward the end of the year. The peak was reached in November with a total of \$67,745,000. The October total was \$57,483,000 and the last month figure, \$63,276,000. March was the closest rival with a total of \$54,051,000 for industrial awards.

Public building by the end of 1946 had shrunk to \$9,415,000. Diminished activity in this field resembled closely the practical elimination of private building during the recent war. Public building reached its highest point in 1946 during August. The \$34,108,000 of that month climaxed public building's most active period which began with the \$28,454,000 of April.

Texas, as in other years, led the southern states in construction values during 1946. The total for the Lone Star State was \$488,777,000. In second place was Florida with \$205,235,000. Totals for the other states were: Maryland, \$144,460,000; Georgia, \$135,615,000; South

(Continued on page 154)

## Brown Shoe Plant Now in Operation

(Continued from page 82)

organization until 1915, when he resigned to become chairman of the board, a position which he held until his death in 1921. John A. Bush, who joined the company in 1896 at the age of 14, was elected president in 1915. He still retains that position. Almost all of the officers have been with the company and its predecessors more than 25 years, and have been in the shoe business all their lives.

Sales of the company are effected through wholly owned selling organizations. In 1938 the company adopted a plan of specialized selling of men's, women's and children's shoes. Separate sales forces distribute Roblee shoes for men, Naturalizer shoes for women, Air Step shoes for women, Forest Park shoes

for women, Buster Brown shoes for boys and girls. Strong advertising campaigns featuring each of these lines is carried on a nation-wide scale.

Chief promotion for the Buster Brown line is a half-hour radio show over the National Broadcasting Company network on Saturday mornings. The other lines are advertised chiefly in national consumer publications.

Particularly famous among Brown Shoe Company's brand names is that of Buster Brown shoes for boys and girls. This name was adopted in 1904, has become more and more famous over the years, until today there is hardly a child or grownup who is not familiar with the name of the mischievous boy and his dog, Tige. Shoes made by Brown are sold over the entire United States, as well as many other parts of the world.

# News from Industry

## Products

**Invisible Flame**—A form of formaldehyde called trioxane that can burn with an extremely hot, "invisible" flame as a tablet fuel for campers, and for industrial uses, is now being produced on commercial scale by E. I. du Pont de Nemours & Co., Wilmington, Del. The tablets are said to ignite instantly producing a clean flame not easily blown by wind. For industry the product is applicable for reaction with various other materials and is suggested by its makers for use in the manufacture of plastics and resins, dyes, chemicals for textile treatment, embalming fluid, paper, leather and cork products, disinfectants and deodorants, and seed and soil treating compounds.

**Hoisting Equipment**—A mobile hoist, one ton rated capacity, usable for transporting as well as lifting, is announced by Alenco Inc., Albert Lea, Minn. Made of welded tubular steel, the unit is known as Alenco Universal Hoist, set for rolling on four heavy duty ball bearing casters, with U-shape base designed to go easily into tight places. Available in seven and nine foot overall heights, with greater heights available on special order.

**Calendar Depicts Growth**—Entering its 47th year of operations, The Youngstown Sheet & Tube Co., has issued a descriptive calendar, illustrating actual scenes of operations incidental to the manufacture of Youngstown products. The photographic reproductions in true color reflect the growth of the company from a modest beginning to present outstanding proportions.

**New Spindle Grinder**—Charles H. Besly & Co., Chicago, recently introduced a new type double vertical spindle grinder for output on small parts. The new direct drive grinder features a horizontal rotary feed which enables operator to drop small parts into feed wheel rapidly. The new machine is represented to grind 3,000 to 4,000 small coil springs per hour. For information write the company, 118-124 N. Clinton St., Chicago 6, and refer to Model 902-12.

**Air Express Additions**—Extension of nationwide air express, now operated over 19 regularly scheduled airlines, has been announced by Air Express Division, Railway Express Agency. Three additions with total of 2,498 route miles will add two western and one Florida airline to serve 53 cities in the west and in Florida.

**Home Freezer Kit**—New among retail sales units of frozen food packaging materials is the Concoora Home Freezer Packaging Kit, an assortment of cartons and other items selected for the owners of home freezer cabinets. Assembled by Container Corp. of America, Chicago, it includes a supply of vapors, freezer pak cartons, stockinette and cellophane supply. A manual, "How to Prepare Foods for Home Freezing," is included. The unit is designed to provide department stores, electrical appliance stores and similar outlets with an additional service for the home freezer buyer.

**New Diesel Plant**—Plans to construct additional facilities at the Beloit Works of Fairbanks Morse & Co., of Chicago, for the manufacture of railway diesel-electric locomotives, were announced recently by C. H. Morse III, vice president in charge of manufacturing. The new building is planned to be 163 by 703 feet, and structure has been designed for use of heavy materials. Interior equipment will include huge electric traveling cranes and other devices for handling heavy materials.

**New Headquarters**—The principal office of The L. N. Dantzer Lumber Co., is now located at Perkinston, Miss., the site of the company's sawmill operations. The Moss Point office is no longer staffed for general business, and associates of the firm are requested to direct communications to Perkinston, or by telephone and telegraph to Ten Mile, Miss.

**New Compressor Line**—Coincident with its 25th anniversary, Davey Compressor Co., Kent, Ohio, announces a complete new line for 1947. This includes five models of 60, 105, 160, 210, 315 c.f.m. capacity. All are V-type cylinder design except Model 315 which is constructed with four low pressure and two high pressure cylinders. Aluminum alloy compressor heads and manifolds are utilized in all models according to Paul H. Davey, president. Aluminum is also used extensively in the crank case material with the object of achieving weight saving and cool compressor operation.

**Handling Platform**—The latest "PhilSkid" platform designed and built by Phillips Mine and Mill Supply Company, Pittsburgh, Pa., is

designed to withstand severe usage in handling heavy castings, scrap, and all types of industrial products. It is of welded-steel construction with heavy corrugated steel deck. No bolts or screws are employed. It is made in a variety of sizes. Detailed information is available upon request from the company.

## Personnel

**John C. Campbell** has been made manager of industrial engine sales, and **James W. Brown** advertising manager for Detroit Diesel Engine Division of General Motors, according to announcement by V. C. Genn, general sales manager. Mr. Campbell joined the company in 1942 and has recently been in charge of advertising ads sales promotion. Mr. Brown, for the past year, has held the position of product news manager for Detroit Diesel.

**Ralph M. Heintz** is temporarily supervising production in addition to his duties as vice president in charge of engineering for Jack & Heintz Precision Industries, Inc., of Cleveland Ohio. Mr. Heintz, who was born in St. Louis and educated at University of California and Leland Stanford, has been engaged in engineering development and production for many years and has appeared nationally as speaker before engineering societies. He has also been a delegate to the international radio conference at The Hague, at Copenhagen, Madrid and Mexico City.

**H. W. Stanley** and **C. E. Huntley** have been announced by the board of directors as new chairman of the board and president-general manager respectively for Tennessee Central Ry. Co., headquarters Nashville, Tenn. Mr. Stanley succeeds Paul M. Davis resigned, and is himself succeeded in his former position by Mr. Huntley. The announcement was made by A. R. Baker, secretary.

**C. M. Mohr** is new manager of Freedom-Valvoline Oil Co.'s Freedom Division, serving the sections of Pennsylvania, Ohio and West Virginia known as the Tri-State area. For the past three years he has devoted his time to sales-service work among dealers in that territory, and in his new capacity will continue that work along with promotion of the company's rust removers and rust preventives.

**Frank M. Clark**, insulation specialist at the Pittsfield plant of General Electric Co.'s apparatus department, and assistant engineer of the Works Laboratory there, has been named technical consultant on insulation of the entire apparatus department by E. E. Johnson, manager of engineering of that department. Retaining his former position at Pittsfield, Mr. Clark will co-ordinate insulation research activities and assist designers in applying findings effectively. He has been engaged in insulation research since 1923 when he joined the company.

**Harry W. Bearfoot** is in charge of a new office established at Baltimore by Kennametal Inc., Latrobe, Pa. The new Baltimore office is located at Room 1605 Court Square Bldg., telephone Plaza 8549.

**Lois R. Caplan**, Washington representative of Hagau Corp., Pittsburgh 19, until he entered the Army, has returned to represent Hagau, Hall Laboratories and Calgon, Inc. He takes over the post filled in his absence by George H. Larkin who has taken over the company's Cincinnati office. Mr. Caplan makes his headquarters at his home in Tacoma Park, Md., a suburb of Washington.

**Gilbert E. Collyer** has been appointed district manager of the Detroit office of H. K. Porter Co., Pittsburgh 22, it is announced by W. W. Caliban, director of sales. Mr. Collyer was formerly located in the Pittsburgh general office, specializing in equipment for processing industries, locomotives, railway specialties and springs. His new location is 642 Book Bldg., Detroit 26.

**Lee G. Miller**, formerly superintendent, has been made plant manager of all operations at Lebanon, Pa., of Lebanon Steel Foundry. The announcement of the promotion made by T. S. Quinn, treasurer in charge of operations, states that Mr. Miller is well deserving of the promotion as he has served with the company for 20 years.

**R. C. Todd**, **G. F. Ahlbrandt** and **Dr. Anson Hayes** have been elected vice presidents of The American Rolling Mill Co., by the company's directors. It is announced by Charles E. Hook, president. For many years all three men have held key positions with Aruco. Mr. Todd has been with the company for 46 years, Mr. Ahlbrandt for 42 years and Dr. Hayes for 18 years. Mr. Hook states that the promotions are appropriate recognition of long and helpful service.

**Dr. C. Earl Webb** of Chicago is now chief

engineer American Bridge Co., Pittsburgh, according to announcement by Frank K. McDanel, president. He succeeds Dr. Charles F. Goodrich who is retiring after 40 years service with this U. S. Steel subsidiary. Succeeding Dr. Webb as the company's western division engineer is Albert P. Boysen who has been associated with American Bridge since 1912.

**Edward A. Sipp** has been appointed manager, railway division, Reynolds Metals Co., as announced by R. S. Reynolds Sr., president. Headquarters for the division are in Chicago. Mr. Sipp holds patents in acoustic and air distribution systems, lighting equipment and electrical control. He is member of Society of Automotive Engineers and Car Department Officers Association.

**J. D. Connor** has been made district manager at St. Louis of Superior Engine division of The National Supply Co., according to announcement by Robert M. Pearson, manager of sales of the division. Mr. Connor has been with the company since 1935. Following service with the armed forces, he returned to inactive status last spring. His office address is 1405 Boatmen's Bank Bldg., St. Louis.

**E. J. Schwannhauser**, vice president, Worthington Pump & Machinery Corp., has been re-elected president of Diesel Engine Manufacturers Association at the annual meeting held recently in Chicago. Also re-elected: J. E. Peterson of General Machinery Corp., and Gordon Lefebvre of Cooper-Bessmer Corp., vice presidents; and Robert H. Morse, Fairbanks Morse & Co., treasurer. Directors: William E. Corrigan, American Locomotive Co., George W. Coddington, General Motors Corp., A. W. McKinney, National Supply Co., Robert E. Friend, Nordberg Mfg. Co., Norris H. Schwenk, Busch-Sulzer Bros., Diesel Engine Co., and G. F. Twist, Atlas Imperial Diesel Engine Co. Harvey T. Hill continues in his capacity as executive director.

**R. H. Money**, refrigeration advisor to W. G. Reynolds, vice president, parts division, Reynolds Metals Co., Louisville, Ky., has been elected president American Society of Refrigeration Engineers. He was vice president of the Society during 1945-1946. Mr. Money holds approximately 40 patents and patent applications, and since joining Reynolds Metals has been responsible for designing and research connected with home freezers. He is now supervising development of a contemplated new line of freezing equipment.

## Literature

**Liquid Conditioning**—Methods and apparatus for conditioning water and other liquids are described in a 60-page booklet compiled by Liquid Conditioning Corp., 423 W. 126th St., New York 27, manufacturers of Liquon and Liquonox equipment and materials. The bulletin describes types of water conditioning processes and explains applications, advantages and limitations of the types. Tables are included listing various kinds of gaseous and solid impurities, and showing the effects and methods of removal of these impurities; also comparison chart showing chemical results produced by treatment methods.

**Resin Bulletin**—The Plastics Division, American Cyanamid Co., has issued a bulletin on the use of Laminac, polyester resin, as a sealant for porous metal. The 4-page folder describes methods of impregnating castings with the resin and illustrates the procedures with schematic drawings. Copies may be obtained from the company, 30 Rockefeller Plaza, New York 20.

**Work Table, Conveyor**—Bulletin PF-8, eight pages, by Island Equipment Corp., 101 Park Ave., New York 17, features an "all-purpose" conveyor, mechanized work table for assembly, inspection and packing operations. The bulletin is illustrated with installations, cross sections and parts of the equipment.

**Aluminum Alloys**—Federated Metals Division, American Smelting & Refining Co., 120 Broadway, New York 5, has announced release of a new reference book on aluminum casting alloys. A 44-page manuscript, the booklet contains data about specifications, mechanical properties and foundry characteristics. Chapters are devoted to fundamental information about the effect of copper, silicon, magnesium, heat treatment, aging treatment, laws of gas absorption, gas removal, shrinkage, cracks and dross.

**Tool Catalog**—Tools, dies and parts, made from Malta cemented carbide and cast non-ferrous alloys are illustrated and described in a 24-page catalog published by Jessop Steel Co., Washington, Pa.

# Countin' up for 1946

It would take a lot of fingers (and toes) to count up how much the Bell System accomplished in 1946 — the busiest year in our whole history.

3,300,000 telephones added

25,000,000 more calls a day handled

\$700,000,000 new equipment made and installed to expand and improve your service

160,000 net increase in employees — total now 640,000

\$400,000,000 increase in payroll

120,000 war veterans reinstated and employed since V-J Day

The story of the year was one of determined progress, despite shortages and many post-war problems. And most calls went through fast.

For 1947, the Bell System aims to go forward to still better service for more and more people.



BELL TELEPHONE SYSTEM



## South Establishes Record for Peace Construction

(Continued from page 151)

Carolina, \$128,627,000; Tennessee, \$101,385,000.

Those below the one hundred million dollar mark were: Louisiana, \$86,168,000; North Carolina, \$74,953,000; Alabama, \$72,872,000; Virginia, \$70,475,000; Mississippi, \$64,260,000; Missouri, \$52,817,000; Oklahoma, \$49,341,000; Arkansas, \$45,060,000; Kentucky, \$44,216,000; West Virginia, \$13,775,000; and the District of Columbia, \$19,496,000.

Important additions to the South's industry were active during December. These included:

\$12,000,000 pulp and paper plant, Cantonment, Fla., Florida Pulp and Paper Co.

\$10,000,000 syrup and corn by-product plant, Corpus Christi, Texas, Corn Products Refining Co.

\$10,000,000 lubricating oil plant, Houston, Texas, Shell Oil Co., Inc.

\$9,168,000 power plant, Sparrows Point, Md., Bethlehem Steel Co.

\$7,000,000 glycerin plant, Deer Park, Texas, Shell Oil & Refining Co.

\$5,500,000 nylon salts plant, Orange, Texas, E. I. du Pont de Nemours & Co.

\$4,500,000 power plant, Leaksville, N. C., Duke Power Co.

\$4,000,000 steam electric plant, Albany, Ga., Georgia Power Co.

\$3,200,000 addition, Cedarhurst, Md., Congoleum-Nairn, Inc.

\$2,000,000 cellophane plant expansion, Old Hickory, Tenn., E. I. du Pont de Nemours & Co.

\$1,000,000 steel fabricating plant, Birmingham, Ala., Virginia Bridge Co.

\$1,000,000 industrial subdivision, Baton Rouge, La., North Baton Rouge Development Co.

\$1,000,000 plant, Houston, Texas National Steel Products Co.

\$1,000,000 factory, Bristol, Tenn., Monroe Calculating Co.

\$900,000 telephone addition, Southern Bell Telephone & Telegraph Co.

\$850,000 paper drinking cup and food container plant, Augusta, Ga., Lily Tulip Cup Corp.

\$700,000 woolen mill, Dublin, Ga., M. T. Stevens Textile Co.

\$500,000 dry ice plant addition, Corpus Christi, Texas, Southern Alkali Corp.

\$500,000 ice cream plant, Houston, Texas, Swift & Co.

\$500,000 bus terminal, Houston, Texas, Southwest Greyhound Lines, Inc.

\$500,000 vitrified pipe plant, Mineral Wells, Texas, Cannelton Sewer Pipe Co.

\$400,000 expansion and remodeling program, Chattanooga, Tenn., Times Printing Co.-News Free Press Co.

\$375,000 paper products plant, Houston, Texas, Magnolia Paper Co.

\$300,000 bus terminal, Nashville, Tenn., Trailway Bus Depot, Inc.

\$300,000 bus terminal, Nashville, Tenn., Consolidated Bus Lines, Inc.

\$300,000 engine rebuilding plant, Houston, Texas, (Continued on page 156)

## NEW AND EXPANDING PLANTS

(Continued from page 8)

**ST. LOUIS**—Mill—Carr-Trombley Manufacturing Co., 3014 N. 2nd Street, has CPA approval for planing mill, cost \$18,300.

**ST. LOUIS**—Building—Stagg Motor Co., 3116 Locust Street, let contract to Hinrichs Construction Co., 2013 Olive Street, for auto sales and service building, 3117 Olive Street, cost \$35,000; brick, concrete blocks and glass blocks.

**ST. LOUIS**—Shop—All-Die, Inc., 2316 Dickson, let contract to Alois Bruckmeyer, Butler Hill Road, Box 597, Lemay, for one-story tool and die shop, 6009 Manchester.

**ST. LOUIS**—Terminal—Buske Freight Lines, let contract to Kopman Construction Co., 722 Chestnut Street, for construction of truck terminal, 1616 N. 9th Street.

**ST. LOUIS**—Office—Robinson Erection Co., has CPA approval for erection of one-story office, 5540 W. Park Ave., cost \$12,500.

**ST. LOUIS**—Toys, Etc.—Midwest Products Co., 2012 Shenandoah Ave., incorporated with E. C. Bartholomew and Associates; manufacture, buy, sell toys, etc.

**ST. LOUIS**—Meat Cooler—Jerome Meat Co., 4015 Garfield Ave., has CPA approval for meat cooler, cost \$18,000.

### NORTH CAROLINA

**ACME**—Factory—Acme Fertilizer Co., Acme Building, Wilmington, Thomas H. Wright, Pres., plans fertilizer factory.

**ALBERMARLE**—Radio Station—The Air of Albermarle, Inc., incorporated with T. R. Rolfe, and Associates with capital stock of \$100,000.

**ASHEBORO**—Plant—Stedman Manufacturing Co., incorporated with Sulton B. Stedman and Associates, with capital stock of \$100,000.

**CHARLOTTE**—Plant—Troy Whitehead Machine Co., Charlotte, let contract to Interstate Construction Co., Charlotte at \$45,000 for plant.

**CHARLOTTE**—Plant—Charlotte Observer, 600 Tryon Street, receiving bids for construction of newspaper plant.

**CHARLOTTE**—Plant—Dwight Phillips plans establishment of a \$200,000 hardwood flooring manufacturing industry; will operate as Phillips Flooring Co.

**DURHAM**—Flooring—Colonial Linoleum and Tile Co., incorporated with E. C. Brooks and Associates with capital stock of \$100,000.

**ELKIN**—Building—Lawrence Dry Cleaners have CPA approval for building, cost \$18,000.

**GREENSBORO**—Plant—Guilford Dairy Co-operative Association, plans construction of 2-story, dairy plant, cost approximately \$250,000; concrete block.

**GREENSBORO**—Addition—Swift & Co., Chicago, Ill., let contract to V. P. Loftis Co., Builders Building, Charlotte, for poultry plant addition.

**HICKORY**—Building—Sigmon-Terry Hosiery Mill, E. D. Lawson, 962 Fourth Street, let contract to Herman Sipe Co., Conover, for

cement block and cement brick building; one-story, 50 x 130; 50 knitting machines in operation, manufacturing men's cotton anklets; ten loopers with an expectation of five more within 90 days; in operation are two dye tubs, one 50 lb., one 100 lb., one extractor and 120 boards.

**HIGH POINT**—Plant—High Point Boiler and Tank Car, Inc., incorporated with John N. Stanley and Associates with capital stock of \$100,000; manufacturing business.

**HIGH POINT**—Plant—American Upholstery Co., Inc., incorporated with William C. Burge and Associates with capital stock of \$100,000.

**KERNERSVILLE**—Laundry—Kernersville Laundry, Inc., incorporated with Glennon H. Shields, and Associates with capital stock of \$50,000; laundry business.

**LEAKSVILLE**—Plant—Leaksville News plans construction of newspaper plant on Washington Street; new equipment to be installed.

**MARSHALL**—Plant—Ellis Hosiery Mills, Inc., Philadelphia, Pa. has acquired Virgin Mills Plant.

**NORTH WILKESBORO**—Building—Wilkes Trading Co., Inc., incorporated with J. L. McNeil, and Associates with capital stock of \$100,000; all kinds of vehicles.

**NORTH WILKESBORO**—Plant—Northwestern Wallpaper and Paint Co., incorporated with D. T. Trivette and Associates with capital stock of \$50,000; paint and wallpaper business.

**STATESVILLE**—Machinery—Sample-Winters Implement Co., incorporated with James Sample and Associates with capital stock of \$100,000.

**TABOR CITY**—Auto Parts—Discus-Fowler Co., Inc., incorporated with G. Garland Fowler and Associates with capital stock of \$100,000.

**WILMINGTON**—Improvements—Swift and Co., J. S. Zapf, General Manager plans \$200,000 expansion and rehabilitation program; plans have been completed on construction of two new buildings—utility and storage on site across the Cape Fear River; both buildings to be one-story; included also is a building to house plant offices.

**WILSON**—Newspaper—Wilson Press, Inc., incorporated with Raymond S. Fanning, New York and Associates.

**WINSTON-SALEM**—Shop—Johns Realty Co., has CPA approval for shoe and accessory shop; alterations—install structural steel to support structure above, cost \$16,000.

### SOUTH CAROLINA

**BAMBERG**—Plant, Etc.—Bamberg Electric Refrigeration Cooperative, Inc., let contract to William P. Crossland, Columbia at \$74,350, for freezer locker plant and abattoir.

**CHARLESTON**—Plant—Walter Pringle and Sons, Inc. Walter Pringle, Jr., President, con-

(Continued on page 168)

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# HORTON

## ELEVATED TANK

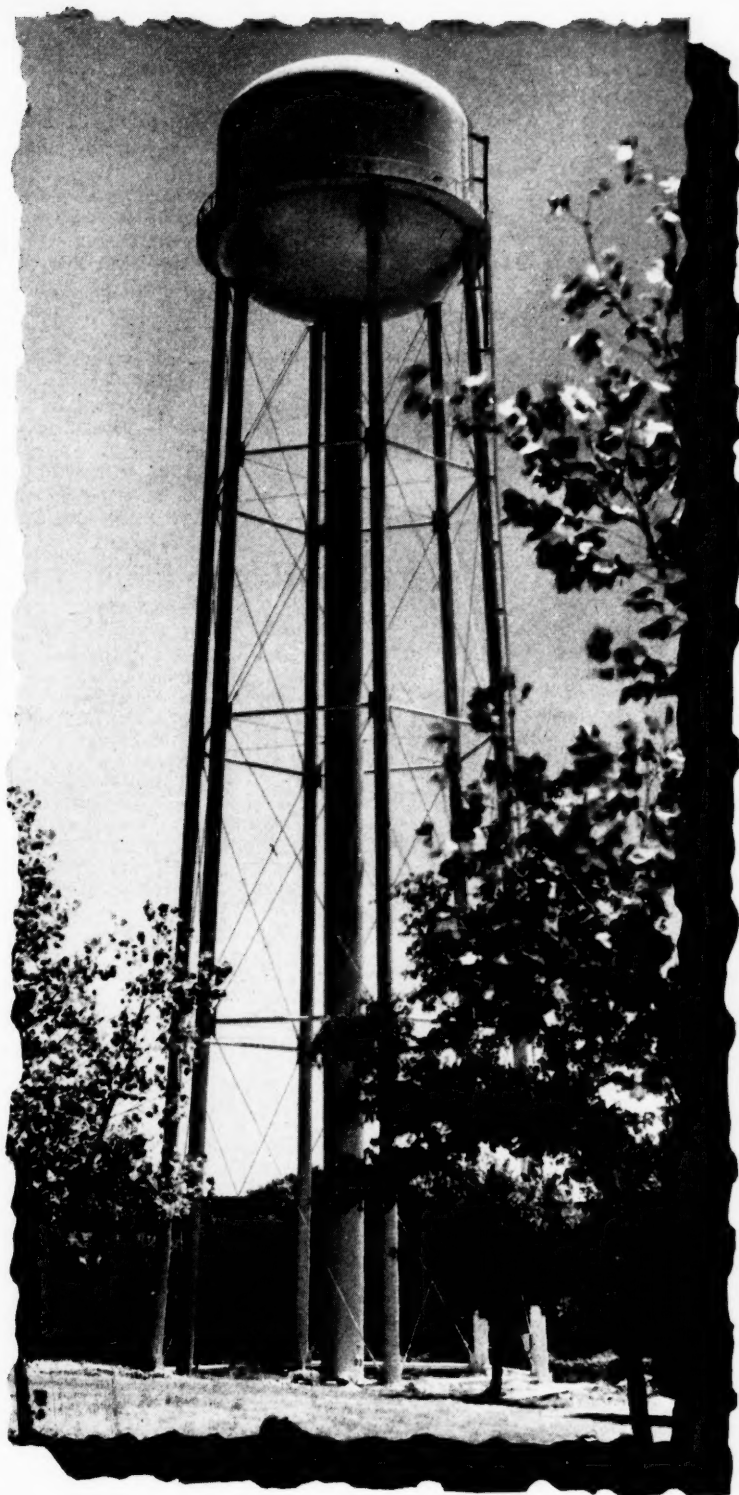
**furnishes water for  
an 8-story hospital  
in Texas**

**T**HE 200,000-gal. Horton elevated tank shown at the right provides gravity water pressure for the patients and staff of the Veterans Administration Hospital at Legion, Texas. Approximately 120,000 gallons are used daily for general service throughout the hospital and for steam boiler operation. The water supply is pumped by electrically-operated turbine pumps from a deep well located about 100 ft. from the tank.

Gravity water pressure, as provided by Horton all-welded elevated tanks, is hard to beat for general service or for fire protection. Water held in an elevated tank is *always* available the instant it is needed.

Horton tanks are smooth, streamlined structures, designed to harmonize with their surroundings. All-welded construction provides long, trouble-free service.

Many industrial plants, public institutions and municipalities in the South are served by Horton elevated water tanks. Let us quote you when you are considering a gravity water supply for general service or fire protection. Write our nearest office.



## CHICAGO BRIDGE & IRON COMPANY

Atlanta 3 .....2145 Healey Building  
Birmingham 1 .....1530 North Fifth Street  
Houston 1 .....5614 Clinton Drive  
Tulsa 3 .....1611 Hunt Building  
New York 6 .....3313-165 Broadway Building  
Cleveland 15 .....2216 Guildhall Building

Chicago 4 .....2106 McCormick Building  
San Francisco 11 .....1240-22 Battery St. Building  
Philadelphia 3 .....1619-1700 Walnut St. Building  
Los Angeles 14 .....1417 Wm. Fox Building  
Washington 4 .....703 Atlantic Building  
Detroit 26 .....1510 Lafayette Building

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PENNSYLVANIA

## South's Peacetime Construction Record

(Continued from page 154)

ton, Texas, Earl McMillan Co.

\$270,000 addition, Wheeling, W. Va., J. F. Stifel & Sons.

\$250,000 sugar plant re-erection project, Moore Haven, Fla., Ruth Sugars.

\$250,000 plant, Greensboro, N. C., Guilford Dairy Cooperative.

\$250,000 factory, Chattanooga, Tenn., Mascot Stove Co.

\$227,000 improvement, Baton Rouge, La., Ethyl Corp.

\$225,000 warehouse and office, Houston, Texas, Crane Company.

\$200,000 warehouse, Mobile, Ala., Kraft Foods Co.

\$200,000 expansion and rehabilitation program, Wilmington, N. C., Swift & Co.

\$175,000 dyeing and finishing plant, Griffin, Ga., Lowell Bleachery.

\$170,000 garment plant, Tylertown, Miss.

\$165,000 oxygen gas manufacturing plant, Waycross, Ga., Air Reduction Sales Co.

\$152,000 warehouse, New Orleans, La., Consolidated Companies, Inc.

\$150,000 improvements, Jacksonville, Fla., Jacksonville Brewing Co.

\$150,000 cigar plant, Waycross, Ga., John H. Swisher & Sons, Inc.

\$150,000 drape manufacturing plant, Dallas, Texas, Regina Manufacturing Co.

\$150,000 rice dryer, Garwood, Texas, William K. Lehrer.

\$145,000 prefabricated house plant, Thomaston, Ga., Knox Corp.

\$145,000 expansion, Houston, Texas, Taub Packing Co.

\$135,000 shirt plant, Forest, Miss., Cape Cod Shirt Co.

\$125,000 milk and ice cream factory, Montgomery, Ala., Dairy Producers.

\$125,000 prefabricated house plant, Jacksonville, Fla., Ivy H. Smith Construction Co.

\$125,000 shirt factory, Panama City, Fla., J. G. Scherf.

\$124,000 truck service and repair plant, Atlanta, Ga., Victory Motors, Inc.

\$120,000 cotton warehouse, Talladega, Ala., Bemis Brothers Bag Co.

\$108,000 garment plant, Poplarville, Miss., Pearl River County.

\$108,000 addition, Siluria, Ala., Buck Creek Cotton Mills.

\$104,500 cold storage plant, Dallas, Texas, F. A. Kadane Pure Ice & Cold Storage Co.

\$103,500 cheese plant, Murfreesboro, Tenn., Wilson & Co.

\$100,000 dairy, LaGrange, Ga., Dairy-men's Association.

\$100,000 steel fabrication plant, Charleston, S. C., Steelsee, Inc.

\$100,000 warehouse, Columbia, S. C., Dinswanger Glass Co.

\$100,000 rebuilding project, Memphis, Tenn., White Swan Laundry.

\$100,000 distribution plant, Beaumont, Texas, Halliburton Oil Well Cementing Co.

\$100,000 venetian blind and window shade plant, Dallas, Texas, Charles W. Breneman Co.

Incandescent lamp manufacturing

plant, Little Rock, Ark., Westinghouse Electric Corp.

**Important industrial expansions listed during the year included the following:**

Tennessee Gas and Transmission Co., Texas pipe line facilities, \$60,000,000.

Georgia Power Co., \$50,000,000 expansion including \$4,000,000 steam electric plant.

Celanese Corp. of America, Rock Hill, S. C., synthetic yarn plant, \$40,000,000.

Shell Oil Co., Houston, Texas, chemical plant expansion, \$25,000,000.

Florida Power & Light Co., Miami, Florida, \$24,000,000 expansion program.

American Enka Corp., Morristown, Tenn., synthetic yarn plant, \$20,000,000.

E. I. du Pont de Nemours & Co., \$20,000,000 nylon yarn plant, Chattanooga, Tenn.

Texas Company, \$20,000,000 natural gasoline plant, Texas.

Georgia State Port Authority, \$15,000,000, water terminals.

Texas Pipe Line Co., Houston, Texas, pipelines, \$15,000,000.

Carbide and Carbon Chemicals Corp., Texas City, Texas, expansion, \$15,000,000.

California Co., \$15,000,000 gas recycling plant, Natchez, Miss.

LaGloria Corp., \$14,000,000 synthetic gasoline plant, Brownsville, Texas area.

United Gas Corp., \$14,000,000 gasoline plant, Brownsville, Texas.

Southern Paperboard Corp., Port Wentworth, Ga., \$12,000,000 linerboard and pulp mill.

Alabama Pulp & Paper Co., \$12,000,000 pulp and paper mill, northwest Florida.

Gair-Santee Corp., \$12,000,000 paper board and box plant, Orangeburg, S. C.

Calumet and Hecla Consolidated Copper Co., copper and tube plant, \$12,000,000, Decatur, Ala.

Carthage Hydrocol, Inc., \$12,000,000 gasoline and chemical plant, Brownsville, Texas.

Electric power program, \$12,000,000, Jacksonville, Fla.

International Harvester Co., Louisville, Ky., plant conversion and enlargement.

Corn Products Refining Co., Corpus Christi, Texas, starch and sugar plant, \$10,000,000.

Alabama Power Co., Gadsden, Ala., power plant, \$10,000,000.

Springs Cotton Mills Co., Lancaster, S. C., textile plant, \$10,000,000.

Hope Natural Gas Co., \$10,000,000 improvements, West Virginia.

Texas Pipe Line Co., and Magnolia Pipe Line Co., \$10,000,000 pipe line, Texas.

Coosa River Newsprint Co., Childersburg, Ala., \$10,000,000.

Southern Paper Board Corp., \$9,000,000 kraft paper mill, Port Wentworth, Savannah, Ga.

New Orleans Public Service, Inc., New Orleans, La., \$9,000,000 program.

Lone Star Gas Co., Dallas, Texas, \$8,250,000 expansion including new lines.

Southern Natural Gas Co., Birmingham, Ala., gas system expansion, \$8,000,000.

West Virginia Pulp & Paper Co., \$8,000,000 expansion, Charleston, S. C.

000 expansion, Charleston, S. C.

Consolidated Gas, Electric Light and Power Co., Baltimore, Md., \$7,000,000 generating plant addition.

Champion Paper & Fibre Co., Pasadena, Texas, paper mill expansion, \$6,500,000.

Reigel Paper Co., Acme, N. C., \$6,300,000 paper plant.

Ford Motor Co., \$6,000,000 plant, Hapeville, Ga.

Western Electric Co., \$6,000,000 plant program, Baltimore, Md.

Atlanta Gas Light Co., Atlanta, Ga., expansion program, \$6,000,000.

Diamond Alkali Co., Houston, Texas, electro-chemical plant, \$6,000,000.

E. I. du Pont de Nemours & Co., \$5,000,000 rayon plant addition, Waynesboro, Va.

Johns-Manville, Corp., \$5,000,000 insulating board plant, Natchez, Miss.

Florida Power and Light Co., Miami, Fla., \$5,000,000 expansion.

International Harvester Co., Memphis, Tenn., plant, \$5,000,000.

St. Louis-San Francisco Railway Co., Springfield Mo., railroad yard expansion, \$5,000,000.

Mississippi Power Light Co., \$4,500,000 power plant, Jackson, Miss.

National Gypsum Co., Baltimore, Md., \$4,000,000 gypsum plant.

Erle P. Halliburton \$4,000,000 portland cement plant, Gulf coast.

Chesapeake & Potomac Telephone Co., Baltimore, Md., telephone center, \$4,000,000.

Southwestern Bell Telephone Co., St. Louis, Mo., \$4,000,000 expansion program.

Armstrong Cork Co., Macon, Ga., \$4,000,000 plant.

National Biscuit Co., Houston, Texas, \$4,000,000 plant.

Gulf Oil Corp., Port Arthur, Texas, topping units, \$4,000,000.

Embry-Riddle Co., \$3,780,000 industrial and commercial center, Miami, Fla.

Dallas Power & Light Co., \$3,270,000 generating plant expansion, Dallas, Texas.

Peninsular Telephone Co., Tampa, Fla., telephone improvements, \$3,000,000.

Liggett and Myers Tobacco Co., Durham, N. C., \$3,000,000 cigarette factory.

Sieberling Rubber Co., Garland, Texas, \$3,000,000 tire and rubber products plant conversion.

Public Service Company of Oklahoma, Tulsa, Okla., \$3,000,000 improvements program.

A. S. Abell Co., Baltimore, Md., publishing plant, \$3,000,000.

Ford Motor Co., St. Louis, Mo., assembly plant, \$3,000,000.

United Biscuit Co., \$3,000,000 plant, St. Louis, Mo.

Union Bag & Paper Corp., Savannah, Ga., \$3,000,000 box plant.

Tennessee Valley Authority, \$3,000,000 fertilizer plant, Mobile, Ala.

E. I. du Pont de Nemours & Co., Richmond, Va., cellophane plant addition, \$2,665,000.

Pensacola, Fla., port facilities, \$2,500,000.

Missouri Farmers Organization milk processing plants, Lebanon, Monett, and

(Continued on page 158)

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<b>LOUISIANA</b>	
JUNG HOTEL	New Orleans
HOTEL DESOTO	New Orleans
<b>MISSISSIPPI</b>	
HOTEL LAMAR	Meridian
<b>NEBRASKA</b>	
HOTEL PAXTON	Omaha
<b>NEW MEXICO</b>	
HOTEL CLOVIS	Clovis
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HOTEL ALDRIDGE	Wewoka
<b>SOUTH CAROLINA</b>	
HOTEL WADE HAMPTON	Columbia
<b>TEXAS</b>	
HOTEL ALICE	Alice
HOTEL STEPHEN F. AUSTIN	Austin
HOTEL EDSON	Baustman
HOTEL BROWNWOOD	Brownwood
HOTEL CORTEZ	Fort Worth
HOTEL TEXAS	Galveston
HOTEL BUCCANEER	Galveston
HOTEL GALVEZ	Galveston
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CORONADO COURTS	Galveston
JACK TAR COURT HOTEL	Galveston
MIRAMAR COURT	Galveston
HOTEL CAVALIER	Galveston
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HOTEL FALLS	Marlin
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## South's Construction Record

(Continued from page 156)

El Dorado Springs, Mo., \$2,500,000.  
 Texas Sheffield Steel Corp., \$2,500,000 steel plant addition, Houston.  
 \$2,500,000 atomic power experimental plant, Oak Ridge, Tenn.  
 Nashville, Chattanooga & St. Louis Railway, Nashville, Tenn., \$2,300,000 improvements.  
 Foley-Scanlon Lumber Co., Perry, Fla., \$2,000,000 paper mill.  
 Public Service Board, \$2,000,000 generating plant enlargement, San Antonio, Texas.  
 Pekin Wood Products Co., \$2,000,000 station wagon body plant, Helena, Ark.,  
 Southland Paper Mills, Inc., \$2,000,000 plant addition, Lufkin, Texas.  
 Phillips Petroleum Co., \$2,000,000 gas distillate plant, Alvin, Texas.  
 Brazos River Transmission Electric Cooperative, \$2,000,000 generating plant, Texas.  
 Alford Terminal Warehouses, Dallas, Texas, \$2,000,000 plant.  
 Pittsburgh Corning Corp., Sedalia, Mo., glass block and Foamglas plants, \$2,000,000.  
 Parkersburg Rig & Reel Co., Eureka, Texas, plant expansion, \$2,000,000.  
 Victor Chemical Works, \$2,000,000 chemical plant, Tarpon Springs, Fla.  
 Southwest Building Products Co., \$2,000,000 felt mill, Dallas, Texas.  
 National Biscuit Co., Houston, Texas, bakery, \$2,000,000.  
 Tennessee Products Corp., Chattanooga, Tenn., \$1,950,000 expansion.  
 Waldensian and Pilot Hosiery Mills, Valdese, N. C., \$1,500,000 expansion.  
 E. I. du Pont de Nemours & Co., Bellwood, Richmond, Va., \$1,500,000 sulphuric acid plant.  
 Joanna Mills, \$1,500,000 improvements program, Goldville, S. C.  
 Mojud Hosiery Co., Inc., \$1,500,000 expansion and improvements, Greensboro, N. C.  
 Minnesota Mining and Manufacturing Co., \$1,500,000 granules plant, Little Rock, Ark.  
 Eastern Air Lines, Atlanta, Ga., air line expansion, \$1,500,000.  
 Utica & Mohawk Mills, Inc., Seneca, S. C., \$1,500,000 plant addition.  
 Atlanta Construction Co., \$1,500,000 publishing plant, Atlanta, Ga.  
 \$1,450,000 union truck terminal, Louisville, Ky.  
 Monsanto Chemical Co., \$1,250,000 conversion and warehouse, Texas City, Texas.  
 Lees-Cochrane Co., \$1,250,000 spinning mill, Glasgow, Va.  
 Arkansas Western Gas Co., \$1,250,000 expansion program, Arkansas.  
 Shreveport Times, \$1,250,000 publishing plant and radio station, Shreveport, La.  
 Charleston Development Corp., \$1,200,000 chemical plant, North Charleston, S. C.  
 International Paper Co., \$1,050,000 additions and improvements, Mobile, Ala.  
 Carnation Milk Co., \$1,000,000 milk plant, Houston, Texas.  
 Metal Goods Corp., \$1,000,000 plant, Houston, Texas.  
 Citrus Concentrates, Inc., Dunedin, Fla.,

\$1,000,000 plant.  
 Sun Oil Co., \$1,000,000 natural gasoline plant as part of \$4,000,000 conservation program in South Texas.  
 J. C. Penney Co., Statesville, N. C., warehouse, \$1,000,000.  
 Tex-O-Kan Flour Mills, Co., Fort Worth, Texas, feed mill, \$1,000,000.  
 Miami Beach Railway Co., Miami Beach, Fla., expansion program, \$1,000,000.  
 Virginia Bridge Co., Birmingham, Ala., \$1,000,000 steel fabricating plant.  
 Charlotte Observer, \$1,000,000 newspaper plant expansion, Charlotte, N. C.  
 Wheland Co., Chattanooga, Tenn., \$1,000,000 foundry expansion.  
 Wayne Knitting Mill, Humbolt, Tenn., \$1,000,000 hosiery mill.  
 Hazel-Atlas Glass Manufacturing Co., Montgomery, Ala., \$1,000,000 plant.  
 Iowa Soap Co., Fort Worth, Texas., \$1,

000,000 soap factory.  
 American Can Co., Fort Smith, Ark., plant, \$1,000,000.  
 Woolen mill, \$1,000,000, Johnston, S. C.  
 Glenn H. McCarthy, \$1,000,000 garage and service building, Houston, Texas.  
 Burrus Feed Mill, \$1,000,000 mill, Fort Worth, Texas.  
 American Can Co., \$1,000,000 can plant for Fort Smith, Ark.  
 Brooklyn Chemical Works, Baltimore, Md., chemical plant, \$1,000,000.  
 Carolina Cement & Lime Co., Harleyville, S. C., \$1,000,000 plant.  
 Halfast Rubber Co., \$1,000,000 expansion, Atlanta, Ga.  
 Expansion program, \$1,000,000, Gulf Portland Cement Co., Houston, Texas.  
 Carnation Milk Co., \$1,000,000 plant, Houston, Texas.  
 Ethyl Corp., Baton Rouge, La., addition, \$1,000,000.

## Atlantic Coast Line Roadbed Rehabilitation

(Continued from page 81)

the past several years, having been scheduled by the end of 1947. The program reached an accelerated stage in 1945 when 325 miles of the heavy rail were laid in main line tracks.

Operating expenditures in 1945 for maintenance of way and structures on the Atlantic Coast Line total above \$26,000,000 with approximately \$4,750,000 going for additions and improvements aimed at raiding roadbed, tracks and other facilities to modern standards. Use of a large amount of labor saving equipment was a feature of the work.

Purchase of various types of railroad maintenance of way equipment has been authorized since the program began. Included were electric and pneumatic tamping outfits, railying cranes, ballast cleaners, locomotive crane, pneumatic spike drivers, adding machines, rail saws, spike pullers, grinders and bolt tighteners.

Contractors connected with the Coast Line reconstruction program are: Atlantic Construction Co., Rocky Mount, N. C.; Bushnell Construction Co., Wauchula, Fla.; F. D. Cline, Raleigh, N. C.; Construction Service Co., Elizabeth City, N. J.; Cornell-Young Co., Macon, Ga.; C.

(Continued on page 160)

## ATLANTIC COAST LINE REHABILITATION

	Track-Miles of New Rail		Crossties, Renewals (Maintenance Only)
	131-lb.	100-lb.	
1943 .....	18.20	54.46	1,170,226
1944 .....	168.95	....	1,180,427
1945 .....	326.67	....	1,822,509
1946 .....	165.00	....	2,100,000
1947 .....	350.00	....	1,850,000
Total .....	1,028.82	54.46	8,123,162

## Ballast Placed (Cubic Yard)

	Crushed Stone Washed Gravel		Slag
1943 .....	137,944	.....	25,825
1944 .....	215,682	39,993	42,947
1945 .....	652,986	60,633	.....
1946 .....	710,000	68,772	.....
1947 .....	710,000	50,000	.....
Total .....	2,426,612	219,398	68,772

## Railroad Tug Radio

(Continued from page 78)

who emphasizes that "it is the modern way to do business."

The line-of-site limitation of VHF radio is seen as an advantage by Mr. Hammond. He says in train and tug communications it confines the signals to a definite area and eliminates overlapping signals from other parts of the country. Bendix has been collaborating with the Baltimore and Ohio since 1943 in developing VHF transmission for railroad use.

Radio transmission in the very high frequencies—the waves are about two meters long and their vibrations 161 million times per second, as compared with the old low frequency ship-to-shore vibrations of about 2.5 million cycles a minute—has been known in principle for a long time. Marconi was among the first to demonstrate its possibilities.

Before the war VHF was in the experimental stage. After hostilities began, radio engineers accelerated their activities. The knowledge thus gained is now being turned to civilian needs and another wartime scientific development has been adapted to the peacetime pursuits of life.

Permanent installations of VHF radio in tug operations are being made in both the New York and San Francisco harbors. Many others are planned. The Baltimore and Ohio system in the Baltimore harbor is expected to be the forerunner of others there. Several large fleets of tugs operate in the harbor. One ship-building concern is now preparing to equip its work boats with the two-way wireless system.

In addition to A. S. Hunt, J. W. Hammond and W. M. Murphey, others witnessing the first operations of the Baltimore tug-to-shore radio included: J. H. Murray, of New York, Baltimore and Ohio railroad superintendent of floating equipment; L. J. Pendergast, superintendent of communications, and Preston B. Tanner, manager of mobile radio sales for Bendix Radio division, which makes the radios in its plant at Towson, north of Baltimore. (S.A.L.)

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—Benjamin Franklin



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## International Harvester Expands South

(Continued from page 77)

er Company was searching for a place to manufacture its line of new small farm tractors its surveys showed Louisville, Kentucky, had many advantages for such manufacture. The city is situated strategically in the center of tractor population and is, therefore, as well suited for the distribution of tractors as any other place. In addition, it is located near the Ohio River, which offers the advantages of water transport in and out of the manufacturing plant.

Of great importance to the Harvester Company was the fact that it was possible to purchase the former Curtis-Wright airplane manufacturing plant there and adapt it to use for manufacture of tractors. This was important because the company wished to get into production as soon as possible, and building a new plant from scratch would have required a considerable span of time and would have been subject to great delays in the procurement and re-

ceipt of materials. The plant was purchased from the War Assets Administration for \$6,700,000,000 in April, 1946.

When ready to operate, the Louisville Works will manufacture Harvester's new Farmall Cub tractor designed for farms as small as forty tillable acres, as well as a new model C all-purpose farm tractor. The company's Model A Farmall tractor, now built elsewhere and improved in design, also will be manufactured at Louisville.

Since some buildings were already built, the Louisville Works is not a new plant requiring all new construction such as that being carried on at Memphis Works. Since July, Harvester has been carrying on miscellaneous alterations in the buildings it bought getting them ready for manufacturing. A considerable quantity of machine tools has been received and set in place. A certain amount of parts manufacture is now being carried on at Louisville Works for tractors built elsewhere in the company.

Construction of several new buildings will be required at Louisville, however, to make it a well-integrated tractor manufacturing plant. Planned construction projects include a complete grey iron foundry, die shop, forge shop, motor manufacturing and motor test buildings, warehouse, loading dock, and additions to the manufacturing building. The warehouse, motor manufacturing and motor test buildings when completed will be additions to existing structures. The other units will be separate structures.

Considerable time was required to draw the plans and specifications for the new buildings. It was possible to let a contract in October for construction of additions to the manufacturing building, motor test building, storage warehouse, and the loading dock. The contract was awarded to the Struck Construction Company, original builders of the Curtiss-Wright plant. This phase of the construction program covers approximately 250,000 square feet of space.

Struck Construction Company started immediately on its phase of the work and considerable progress

has been made. Work will be rushed in order to have the plant ready for limited manufacture in the spring of 1947. It is expected that production can be accelerated in the last quarter of 1947, but the plant will not be in full operation until 1948.

Plans and specifications for the Louisville Works foundry have been completed and bids are now being requested for construction. It will probably take a year to complete the foundry.

## Continuous Still Developed

(Continued from page 75)

will be produced, and that the quality will be fully as good if not better than that produced by conventional methods. It uses less than two-thirds as much steam as the batch type still and only half as much labor. One man can manage the new still and package the rosin it produces. Cost of the new still is estimated to be somewhat less than for the batch still. The still is designed according to sound engineering principles and it can be built from standard equipment. There are no complicated designs. Construction is simple.

The new experimental still is now in operation at the naval stores plant of the Newton company near Lake City, Florida, where it is running simultaneously with a modern steam batch still which was also developed by the Olustee station workers. Both stills take their cleaned gum from the same tank and both are producing about the same quality of rosin and turpentine. The batch still which is located in a building behind the new continuous still is considerably larger than the new still and therefore turns out more rosin in a given time.

Messrs. Knapp and Shingler feel that the output of their new still can be satisfactorily increased by increasing the size of the column from 8 inches to 10 or 12 inches. As a matter of fact they have already figured on this and their next move will probably be to arrange for construction of a larger continuous type still. A smaller 6-inch column was operated at the Naval Stores Station during 1945, and the Station engineers are confident that, having built six and eight inch stills, both of which operated successfully, that it will be possible to build a larger still which will have a capacity

## Coast Line Rehabilitation

(Continued from page 158)

G. Kershaw Contracting Co., Birmingham, Ala.; Royce Kershaw, Inc., Montgomery, Ala.

Also, Ross & White Co., Chicago, Ill.; Okeechobee Construction Co., Jacksonville, Fla.; W. L. Ragland Sons, Richmond, Va.; Stansfield Construction Co., Tampa, Fla.; Somerset Company, Skaneateles, N. Y.; Tidewater Construction Co., Norfolk, Va., and A. S. Wikstrom, Skaneateles, N. Y.

Ballast requirements for the program have been filled by Trego Stone Corporation, Roanoke, Va.; Bryan Rock & Sand Co., Raleigh, N. C.; Palmetto Quarries Co., Columbia, S. C., and Becker County Sand & Gravel Co., Cheraw, S. C.

Most of the treated ties and timber has been supplied under contract with the American Lumber & Treating Co., Chicago, Ill., from its plants at Gainesville, Fla., and Florence, S. C.

Bethlehem Steel Co. and the Tennessee Coal, Iron and Railroad Co. are furnishing the new steel rail.

equal to that of the conventional batch steam still, i.e. about 8 to 9 drums of rosin per hour. One of the reasons the new still is performing so well is because the kinks and "bugs" were ironed out in laboratory and pilot-plant models before the present small commercial size still was built and put into operation.

Dr. L. B. Howard, chief of the Bureau of Agricultural and Industrial Chemistry, says that the new still is the result of about three years of intensive research by the technical staff of the Olustee Station, and that it was developed in the hope of increasing the income of the 50,000 people who "turpentine" over 100,000,000 slash and long-leaf pine trees in the 7 southeastern States to produce a crop of naval stores valued at \$40,000,000 a year. The naval stores industry has changed over a long period of years from its original purpose of producing pitch and pine tar for calking wooden ships, that's how it got the name "naval stores," to supplying turpentine and rosin for everyday use.

One of the oldest industries of the South is the production of rosin and turpentine which had its beginning in southern Virginia in Colonial days with the development of a demand for pitch and pine tar for calking ships. With the dwindling of the one-time impressive fleet of wooden ships, new developments and new uses have continued to create demand for these forest products, making naval stores the sixth farming activity in the South and of importance in our export trade.

Six Southern States produce about 65 per cent of the world's supply of naval stores. They represent an industry with an annual output of turpentine, rosin and by-products valued at approximately \$40,000,000, providing employment for 50,000 persons.

About 1,452,036 drums of rosin and 488,131 barrels of turpentine were produced by the naval stores industry in the 1945-46 season.

#### TURPENTINE AND ROSIN OUTPUT BY STATES

	Gum Rosin Drums (520 pounds net)	Gum Turpentine Barrels (50 gallons)
Georgia .....	506,002	180,715
Florida .....	123,161	43,986
Alabama .....	38,458	13,735

(Continued on page 164)



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## LETTERS

The following letters from our readers are typical of many which have come in during the last month commenting on our December front cover editorial, "The South's Next Objective."

Lack of space prevents publishing them all, but the Editors of **MANUFACTURERS RECORD** are glad to have them for the practical suggestions they offer and the genuine interest they show in the most worthy project of establishing *more* finished products industries in the South.

—Editor, **MANUFACTURERS RECORD**.

To the Editor, *Manufacturers Record*:

"Thousands of men and women who live in this section have had some experience during the war in defense plants and adapt themselves very readily to skilled and semi-skilled work.

"A healthy environment has a tremendous effect on the morale of the workers. This was proven during the war with labor disturbances in this section being practically nil.

"I am glad you are going back to the editorial front page of the **MANUFACTURERS RECORD** which was the custom many years ago."

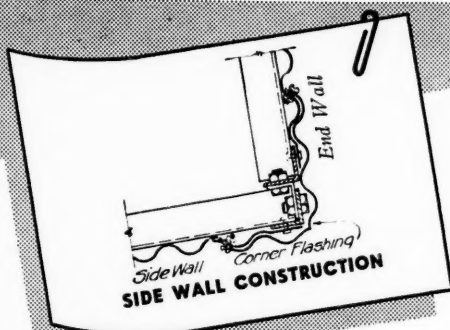
J. S. Breyer, General Industrial Agent  
Southern Railway System  
Meridian, Miss.

To the Editor, *Manufacturers Record*:

"The editorial, 'The South's Next Objective,' seems to suggest that the addition of processing industries is somewhat new, whereas the text of the editorial correctly indicates otherwise.

"In running over in my mind the principal commodities produced on the farms of the South, it seems to me that most of these commodities are processed right here in the South. For instance, taking the most common, there is cotton which, as you know, is used for the making of yarn and cloth, and now with the addition of tire factories and garment manufacturing plants, the most of our cotton is used in the making of the final products for the consumer right here in the South. Again taking tobacco, another of our most important crops in the South. With few exceptions it is carried through to the final processing incident to consumer use. Witness cigar making in Tampa, cigarettes in Durham, Winston-Salem, Richmond, etc. Take citrus fruits. Practically all of the crop that is not marketed in the fresh state is used in the canning and preserving industries located in the state of Florida. In the case of livestock, while there are many shipments made to packing plants in the North, it is a fact that there are a great many meat packing plants in the South and the number is continually increasing. The story is the same with fruits,

(Continued on page 172)



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## Continuous Still Developed

(Continued from page 161)

Mississippi . . .	8,677	3,099
South Carolina	5,060	1,807
Louisiana . . .	2,548	910
Total . . . . .	683,906	244,252

Scattered throughout the naval stores producing regions of the South, are small local turpentine stills, while large wood distilling plants utilizing pine shavings, stumps and topwood are in operation at many concentration points. Such enterprises require in their construction the latest developments in equipment, piping, tanks,

extractors, stills, evaporators, etc., for the manufacture of wood, rosin, steam distilled turpentine, pine oil, disinfectants and a long and growing list of by-products.

With a pine forest land area of 150,570,000 acres and increasing interest in reforestation and fire protection, the South can continue to supply the bulk of the world's naval stores requirements.

Also, furnishing as it does 43 per cent of the lumber cut of the United States and capable of producing our pulp and paper needs, developments of which are making rapid progress, the forest resources of the South are one of its greatest assets.

## South is on the March

(Continued from page 71)

the rapid increase of meat packing in Florida and other states in the Southeast. Indeed a list of the South's varied enterprises would read like a roster of American industry, agriculture and commerce.

A most significant feature of the South's development in recent years is the wide range of diversification in industry. The South had made marked strides toward industrialization before the War, and in view of the proximity of the region to the large consuming markets of the country, its abundant natural resources, mild climate and favorable conditions for manufacture, every present indication points to further acceleration of the South's industrial growth.

It is the consensus that the years immediately ahead will be the most productive in the history of our economic life. We are faced with an enormous demand for all kinds of goods. There are tremendous shortages of consumer items to be filled. These demands should keep the wheels of industry humming for years. Even in normal times only a relatively small proportion of our population ever bought all the things they want. The backlog of demand resulting from the war has greatly increased our normal consumer needs. When we add to these factors the new industries which will no doubt result from technological advances achieved by industry, plus the demands for goods needed in the relief and rehabilita-

tion of the war stricken areas, we have every prospect for a production volume which will mean industrial activity on a scale heretofore unknown in times of peace.

All of this holds promise for greater things for the South. The war had the result of industrializing countries and sections which had previously boasted of little in the way of manufactures. It is only logical that those sections which have secured new industrial developments will seek to hold on to those enterprises. However, many of them are located without regard to the fundamental economies involved, and with the return of competitive conditions, many of these communities and localities will be forced to yield their industrial enterprises to areas more favorably situated.

The coming "battle of industries" will be accompanied by keen competition, both in efforts to maintain the industrial advances achieved as a result of the war, as well as on the part of the communities to secure new enterprises. Here again the South enjoys fortunate advantages in that industrialization of this area has been under way for more than a generation. In other words, the bulk of our industries are permanent in nature and were not secured by reason of war.

The reasons, although they may appear trite, are vital and fundamental. In brief, they may be summarized as: abundance of raw materials, cheap power, good transportation facilities, a plentiful sup-

ply of native-born labor, mild climate, favorable living conditions and proximity to large and fast-growing markets. While there are other factors which enter into the cost of manufacturing goods and commodities, these in the main constitute the dollars and cents reasons for the South's industrial growth.

Development of industry is of direct benefit to agriculture. New industries in a community increase payrolls which in turn increase the purchasing power of the people. These industries absorb the excess population from the farms in gainful occupation and these industrial workers in turn constitute a ready cash market for the crops produced by the men left on the farm. Thus we find that industry has made notable contributions to the improvement of the farming class in the South during the past few decades.

A new factor of importance has been added in the last few years to the long list of assets possessed by the South and that is—available capital for the financing of industrial expansion as well as for the launching of new business enterprises. In times past, it was necessary for communities in the South to seek outside financial assistance in the building of factories and inaugurating new business ventures. Indeed many communities depended solely upon "new blood" from the outside to come in and build up industries. In some instances this resulted in absentee ownership of industries and necessarily a great many communities possessing fundamental requisites for industrial growth were unable to realize upon these possibilities because there were not enough interested industrial prospects to go around. With a plentiful supply of capital, such as now exists, the South is able in large measure to finance its own industries and this fact is abundantly reflected in the increasing number of enterprises launched in recent years and built with local capital. This is perhaps the most convincing final proof of the South's confidence in its future and to which I have referred in the beginning of this article.

All about us are opportunities for further industrial growth. There is scarcely a community in the South

(Continued on page 165)

## South on the March

(Continued from page 164)

which does not possess a combination of factors susceptible of being utilized in the profitable operation of some type of industry. Notwithstanding the fact that the South possesses one-third the nation's population, we still account for only one-fifth of the country's manufactures. And notwithstanding the remarkable growth which we have attained in recent years, the South can well support several times its present population. There are natural resources in the area which are virtually untapped and although the statement may seem trite, in my humble judgment we have barely scratched the surface of the possibilities for sound industrial growth in this area.

## The South Faces Readjustments

(Continued from page 70)

ence in Birmingham, Ala. Robert P. Russell, chief of the Standard Oil (N. J.) research staff, asserted that continued advancement of the South "will be largely dependent on the type of research done to meet specifically the problems of the South."

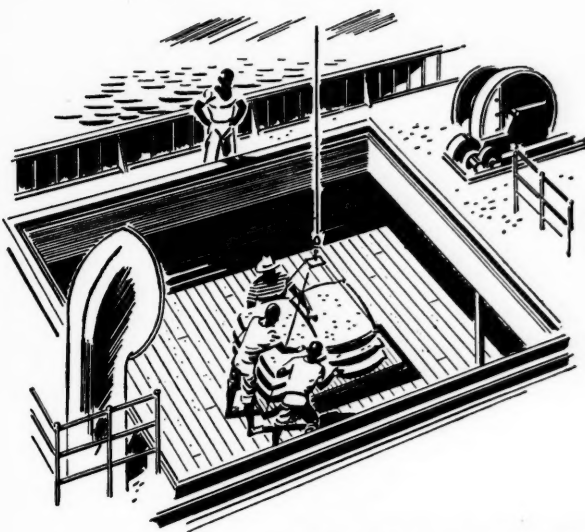
Dr. Lazier is planning eagerly to expand the Institute's agricultural research. He particularly is desirous of exploring the problems of soil fertility and development of new farm crops. Also, the Institute's director is thoughtfully approaching research into fundamentals of cotton lint and cotton seed.

Among Southern industry there is some agitation for breeding a plant which will produce "cottonseed" without any lint.

As regards the cotton problem, Dr. Lazier shares many of the views upon which are based the extensive and persistent researches by the National Cotton Council staff. Oscar Johnston of Mississippi, the Council's long-time president, insists that research findings soon will impel almost revolutionary economic and social advance in the Cotton Belt.

In this connection, North Carolina Agriculture Commissioner W. Kerr Scott said at a recent Cotton Council conference that the Hope-Flannagan Bill wasn't enacted any too soon for the salvation of the

(Continued on page 166)



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## The South Faces Readjustments

(Continued from page 165)

American cotton industry. "That legislation emphasizes research into marketing, which is most fortunate, for this research is most urgent and opportune."

Mr. Johnston, a "cotton optimist," says that the steadily approaching mechanization, supported by research, will mark "the beginning of the greatest period of prosperity in history for the South's Cotton Belt." Further, he doesn't expect this to involve any large-scale displacement of farm population.

In addition to research into processing and merchandising, Leonard Smith, young director of the Council's technical research, insists that all such programs should be supported by technical service to overcome industry's "strong resistance" to installing technical advances in mills and factories.

The Council, based at Memphis, Tenn., and Washington, D. C., is financed liberally by the cotton industry's many interests and expects to participate in any Federal research allocations.

Supplementing research, the Council next Spring will intensify its sales promotion. Plans provide for flying a group of distinguished designers of fine cotton fashions for women into the Cotton Belt to give them a more intimate understanding of cotton. Also, the 1947 Maid of Cotton will be flown to Paris. There the French designers will see the American girl, selected for poise, personality and beauty, model the masterpieces of American designers.

The Committee of the South recently was organized at a Birmingham conference and launched encouraging movements in several directions. This action emphasized anew that the Southern States are appreciating the urgency of finding cures for their economic ailments.

J. M. Broughton, former North Carolina Governor, chairman of this committee, asserted previously that "The South needs more cows and less demagogues." The committee, he says, "will start from available information, look at the facts, and see where we will go from here . . . if we are to make full contribution to

the Nation's progress."

Dean Calvin H. Hoover of the very rich Duke University's graduate school will direct research for the Committee of the South and its well-financed, hard-headed, optimistic and realistic planners. There is nothing startling in the objectives—just a promise to delve patiently and constructively into factors which have combined to win for the South the doubtful distinction of being "an economic colony."

This enterprise proclaims, however, that abundant research possibilities challenge the South's alert scientists and ambitious industrialists.

All these plannings inferentially emphasize opportunities and carry the conviction that, though hard pressed, the South retains the initiative and possesses ample maneuver space.

Actually, the idea already is widely held that overhaul of the South's economy is inevitable. A prospect of such import should arouse the whole Nation's profound interest.

## Ozark Grape Industry

(Continued from page 79)

produced by the Italian farmers and these tests confirmed the belief of the Frisco official and others that the Concord grapes produced in the Ozarks were suitable for commercial processing and commercial purposes.

That was not the end of the story, however. The residents of the area had to be convinced that the grape would prove sufficiently profitable for them to devote more time and acreage to its production. And, the Welch Company had to be shown that there would be sufficient tonnage produced in the area to justify location of a processing plant.

With these two objectives in their minds, the leaders of the Frisco's agricultural department began their missionary work. No candidate seeking political office ever did a more thorough campaigning job than the Frisco representatives did in their drive to sell grape growing to the Ozarks farmers. Community meetings were held at every rural postoffice, city and town in an area of 100 miles of Springdale, Ark. Business men of the territory joined wholeheartedly in the movement, and cooperated by either personally

setting out vineyards or assisting in the financing of vineyards.

Within a five-year period the 150 acres devoted to growing grapes for home consumption had been expanded to 5,000 acres devoted to commercial production. Meanwhile, the Welch Company had completed its modern plant at Springdale and the company had been cooperating to the extent of shipping grape roots into the territory in carload lots and selling them to the growers at reasonable prices and on easy terms.

Today the acreage in grapes has expanded to approximately 10,000 acres, and in addition a number of grape juice concerns and wineries have opened to process the crop.

The Welch Company in the Spring of 1946 completed a half million dollar expansion program at Springdale and this year is expected to process the equivalent of 700 carloads of Concord grapes.

All of these grapes will not be shipped out to the fresh markets but the processed product will go to every state in the Union as well as to many foreign countries.

Some idea of the value of this crop to the Ozarks area may be gained from the fact that the Springdale Welch plant now has a capacity of 6,500 tons of grapes, or approximately double its 1945 capacity. The pressing capacity and grape-handling facilities have been stepped up from eight tons per hour to 22 tons per hour. Newly-installed stainless steel tanks hold the juice in a cold storage building, thus assuring uniform quality of all juice packed throughout the season.

In 1945, the Welch plant at Springdale processed 32 carloads of grapes from Rosati, Mo., and five carloads from Republic, Mo., and estimates are that approximately the same number of cars will be handled from these communities in the 1946 season.

Besides the grapes handled, the Welch plant has a new processing line to handle oranges for marmalade base and the company expects to process between two and three million pounds of strawberries from the surrounding territory as well as a large quantity of blackberries, and plans are made to operate the plant at full capacity for as many days as possible to handle these and other crops.



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## Southern Expansions

(Continued from page 154)

structing a dimension furniture plant at North Charleston, cost \$40,000.

**CHARLESTON**—Plant—Ford's Redi-Mix Concrete Co., J. Drayton Ford, President, incorporated with capital of \$30,000.

**CHARLESTON**—Furniture—Charleston Wood Products Co., Inc., Max Wagenberg, President, incorporated with capital of \$100,000; will manufacture plywood, furniture and veneer.

**COLUMBIA**—Warehouse—Dinswanger Glass Co., Memphis, Tenn., let contract to John S. Linton, 1344 Wellington St., for glass storage warehouse, cost \$100,000.

**GOLDVILLE**—Plant—Joanna Textile Mills let contract to G. E. Moore & Co., Greenwood, for sewage disposal plant at Joanna Textile Mills.

**GREENVILLE**—Expansion—CPA approved \$900,000 addition to Greenville Southern Bell Telephone Co., on College St.

**GREENVILLE**—Plant—American Paper Tube Co., Woonsocket, plans conversion of former AAF gymnasium building into plant for manufacture of paper bobbins and quills for the textile industry.

**LANCASTER**—Power Plant—Springs Cotton Mills, E. L. Scruggs, Chief Engr., will construct power plant.

**MOUNT HOLLY**—Brick, Etc.—Mount Holly Clay Products Co., George H. Fishburne, President, installing machinery; first product to be manufactured will be brick; later, hollow tile and clay pipe.

## TENNESSEE

**BRISTOL**—Factory—Monroe Calculating Co., let contract to Alvey Construction Co., for construction of factory building, cost approximately \$1,000,000.

**CARTHAGE**—Plant—Borden Co., has CPA approval for construction of a milk processing plant, cost \$39,000.

**CHATTANOOGA**—Plant—Mascot Stove Co., let contract to A. F. Hahn, Chattanooga, for construction of a factory building, cost approximately \$250,000; one-story; 400 x 170; concrete floor.

**CHATTANOOGA**—Repair Shop—Brice Building Co., Inc., has contract for diesel locomotive repair shop for Southern Railway System, Washington, D. C.

**CHATTANOOGA**—Factory—Sub-contracts let for construction of factory building for Mascot Stove Co., cost \$250,000.

**CHATTANOOGA**—Remodeling—Times Printing Co.-News Free Press Co., contemplates a \$400,000 expansion and remodeling program; total investment \$750,000 including new equipment.

**CHATTANOOGA**—Plant—Associated Dairies, Inc., 2232 E. 23rd Street, incorporated to operate a dairy and pasteurizing plant.

**DYER**—Plant—Brown Shoe Co., St. Louis, Mo., plans construction of a steel and brick structure of 12,000 sq. ft. floor space for new sole fitting unit.

**DYERSBURG**—Facilities—Lion Oil Co., El Dorado, Ark., has acquired properties of The Tennessee Oil Co.

**GAINESBORO**—Plant—Borden Co., has CPA approval for construction of a milk processing plant, cost \$49,750.

**GALLATIN**—Expansion—R. C. Owen Co., Inc., making \$250,000 plant expansion; when completed, the plant will cover 12 acres and have a storage space for 4500 hogsheads of leaf tobacco; a new redrying unit has a daily capacity of 200,000 lbs.; Company manufactures chewing and smoking tobaccos.

**GALLATIN**—Plant—J. C. Harvey and L. A. Green, plans construction of plant on recently acquired property for manufacture of metal awnings.

**HOHENWALD**—Gas—The Tennessee L-P Gas & Heating Co., has State charter of incorporation for operation of liquefied petroleum gas business; will serve territory including Lewis, Hickman, Wayne, Perry, and Lawrence counties; W. G. Darden, Pres.

**KNOXVILLE**—Addition—Cherry Street Block Co., has CPA approval for addition to building to be used in manufacture of coal mining equipment, cost \$25,000.

**LAFAYETTE**—Factory Building—Kingsboro Silk Mills, let contract to G. E. Moore Co., Greenwood, S. C., for construction of concrete and steel factory building, estimated cost \$45,000.

**MEMPHIS**—Building—Lewis Supply Manufacturing Co., has CPA approval for re-constructing a building recently acquired from Jones & Laughlin Steel Co.; sawmill equipment to be manufactured at new site, estimated cost \$35,000, including building.

**MEMPHIS**—Building—J. I. Case Co., has acquired site for erection of a 100,000 sq. ft. building to house its distribution branch for farm equipment.

**MEMPHIS**—Plant—White Swan Laundry plans rebuilding of plant at estimated cost of \$100,000.

**MURFREESBORO**—Plant—Nursery Furniture Manufacturers, Inc., incorporated with John H. and Rosalind James and Associates; manufacture doll cribs and similar nursery furniture along with regular baby cribs.

**MURFREESBORO**—Plant—Wilson & Co., have CPA approval for construction of a cheese plant, cost \$103,503; two-story and concrete.

**NASHVILLE**—Bus Terminal—Consolidated Bus Lines, Inc., plans brick, concrete and steel bus terminal, cost \$300,000.

**NASHVILLE**—Bus Terminal—Trailway Bus Depot, Inc., let contract to W. L. Halley & Co., for excavation on bus terminal, Sixth Avenue, North; cost of project \$300,000.

**OLD HICKORY**—Expansion—E. I. duPont de Nemours Corp., contemplates construction of additional buildings and expansion of cellophane plant, cost approximately \$2,000,000; brick, structural steel frame, reinforced concrete floors.

**PORTLAND**—Plant—Kraft Foods Co., has CPA approval for cheese plant, cost \$45,000.

**TRENTON**—Plant—Pet Milk Co., has CPA approval for a milk-receiving station, cost \$14,000.

## TEXAS

**TEXAS**—Pipeline—Mid-Continent Gas Transmission Co., Tulsa, Okla., plans pipeline from the Hugoton fields of Texas to St. Paul, Minn., via Kansas City, Mo., estimated cost \$79,000,000.

**TEXAS**—Gas System—Michigan-Wisconsin Pipe Line Co., has been authorized by Federal Power Commission to construct and operate initial facilities of natural gas transmission system extending from Hugoton Gas Field in Texas, to markets in Wisconsin, Iowa, Missouri and Michigan; estimated cost \$52,618,823.

**AUSTIN**—Factory—Austin Venetian Blind Co., Josephine Street, let contract to John

(Continued on page 170)

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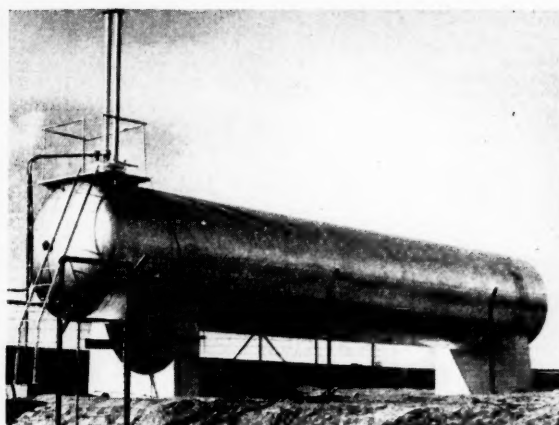
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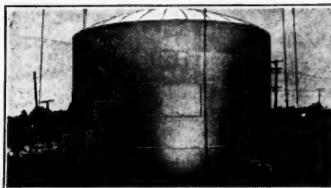
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—WELDED OR RIVETED—



We now manufacture and offer to the trade tanks in all sizes for pressure or gravity work. Also other steel equipment of either

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CONSTRUCTION

This applies to field as well as shop built equipment.

Write us for information and quotations.

**CHATTANOOGA BOILER & TANK CO.**  
CHATTANOOGA, TENN.

## Southern Expansions

(Continued from page 168)

Broad Construction Co., 1711 W. 5th Street, for construction of factory building, Josephine Street, cost \$17,000.

**BEEVILLE**—Plant—L. R. Hollingsworth plans construction of 500-locker frozen food plant; in addition to locker boxes, it will also have a sharp freeze room, commercial storage room, bulk storage room, a lard-rendering room, department for processing pork, and room for storage of wild game.

**BEAUMONT**—Plant—Halliburton Oil Well Cementing Co., Earl Halliburton, President, plans acquisition of 7.35 acres of city-owned riverfront property for erection of \$100,000 distributing plant.

**COLUMBUS**—Garage—Schobel Truck & Tractor Co., C. A. Schobel, let contract to A. N. Evans for garage and machine shop, U. S. Highway 90; brick and structural clay tile construction with concrete floors, steel joists and beam roof construction.

**CORPUS CHRISTI**—Expansion—Southern Alkali Corp., O. N. Stevens, plans expansion of dry ice plant, estimated cost \$500,000; will produce 450,000 tons yearly.

**CORPUS CHRISTI**—Warehouse—Jess Edwards, Inc., 2713 South Port Avenue, let contract to Lee Aiken, P. O. Box 2350, for construction of warehouse building, McBride Lane, cost \$20,000; reinforced concrete, including garage.

**CORPUS CHRISTI**—Plant—Steel Engineer-

ing Co., C. V. Thornton, Fort Worth, have acquired five-acre site, Villa Drive and Robstown Road for construction of steel plant.

**CORPUS CHRISTI**—Shelters—Lee Aiken, P. O. Box 2350, has contract for frame shelters over diesel engine pits for Missouri Pacific Railroad Co.

**CORPUS CHRISTI**—Building—Briner Paint Manufacturing Co., 3713 Agnes Street, has CPA approval for erection of a prefabricated steel building.

**CORPUS CHRISTI**—Refinery—Corn Products Refining Co., Morris Sayre, President, Kansas City, Mo., let contract to H. K. Ferguson Co., Houston, for construction of manufacturing plant for manufacture of syrup and by-products from corn, milo maize and other grains, on site one mile west of The American Smelting & Refining Co.; contract price \$10,000,000.

**CORSICANA**—Factory—Chamber of Commerce, let contract to Eckert-Fair Construction Co., 1307 Liberty Bank Building, Dallas, for construction of one-story, brick, steel and reinforced concrete hat factory building; Texas Miller Products, Inc., Lessees.

**DALLAS**—Building—Henger Construction Co., 1600 National Bank Bldg., Dallas, has contract for two story addition to administration building, for Southwestern Bell Telephone Co., owners.

**DALLAS**—Factory—Industrial Investment Co., let contract to Vivrett & Vivrett, Southland Life Building, Dallas, for construction of brick, concrete and reinforced concrete factory building, Plantation Road; building to be occupied by Trailmobile Company.

**DALLAS**—Bakery, etc.—Marvin Lunsford has plans in progress for construction of one-story, masonry bakery and candy factory, Denton Drive; concrete foundation; air-conditioned.

**DALLAS**—Freight Station—Rock Island Railroad Co., plans freight station, McKinney-Lamar St., Industrial district; one-story, masonry and brick, concrete foundation; built-up roof, etc.; cost approximately \$135,000.

**DALLAS**—Broadcast Tower—Variety Broadcasting Co., 5023 Lark Lane, let contract to H. G. Well, 9320 Preston Road, for radio broadcasting tower, 5030 Forney Ave., cost approximately \$10,000.

**DALLAS**—Laboratory—W. R. Anderson, 1319 Henderson St., let contract to Robert Johnson, 324 N. Erway, for construction of one-story photo laboratory, 2600 Henderson Street, cost \$10,000.

**DALLAS**—Freight Depot—Texas & Pacific Railway Co., W. G. Volmer, Pres., plans freight station tracks, paving and pooling car station, Industrial Blvd.; cost \$1,600,000.

**DALLAS**—Garage—H. & N. I. Motor Freight Lines, let contract to Churchill & Barry, 214 Construction Bldg., for one-story masonry garage; at 330 Elder St.; concrete foundation and built-up roof.

**DALLAS**—Factory—Charles W. Breneman Co., Marvin L. Walter, Manager, broke ground for construction of new Venetian blind and window shade factory, 2500 block Latimer, cost approximately \$100,000.

**DALLAS**—Business Building—Burroughs Adding Machine Co., C. Ray Scott, Manager, let contract to Robert E. McKee, P. O. Box 2848, for construction of two-story, steel, masonry and hollow tile business building.

**DALLAS**—Warehouse—W. W. Caruth, 5803 Greenville Ave., constructing metal frame and metal covered warehouse, 5723 Greenville Ave., cost \$20,000; concrete foundation; built-up roof, etc.

**DALLAS**—Plant—Regina Manufacturing Co., M. K. Hurst, Sr., President, plans construction of a new \$150,000 plant on southeast corner of McKinney and Laws; will manufacture drapes and bedroom ensembles and wholesale piece goods, for which special machinery will be installed; two-story with 30,000 sq. ft. of floor space.

**DALLAS**—Factory, Etc.—Best Foods, Inc., 1917 N. Houston St., has selected site, Airline Park, for construction of a factory and warehouse; one-story, 40,000 sq. ft. floor space; concrete foundation; built-up roof.

**DALLAS**—Factory Building—Ben H. Rosenthal, 1002 Republic Bank Building, constructing one-story masonry factory, 2300 Alamo Street, cost approximately \$10,300.

**DALLAS**—Factory—Griffin Manufacturing Co., 2401 Hickory St., let contract to J. O. Everett, 4416 Bowser St., for construction of one-story masonry factory building, 6115 Denton Drive, cost \$50,000.

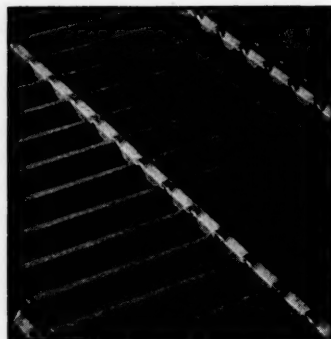
**DALLAS**—Warehouse—Shoelkne Co., 806 Jackson Street, let contract to Vilbig Brothers, 2026 Singleton Boulevard, for construction of one-story warehouse, 600 S. Austin Street, cost approximately \$20,000.

**DALLAS**—Building—Fulton Bag & Cotton Mills, 170 Boulevard Street, Atlanta, Ga., plans construction of factory building on recently acquired site; 100,000 sq. ft. of floor space.

**DALLAS**—Building—F. A. Kadane, Pure Ice & Cold Storage Co., received low bid of \$104,480 from T. C. Bateson Construction Co., 622 Irwin-Keasler Building, for construction of a cold storage building.

**DEER PARK**—Plant—Rohm & Haas Co., Philadelphia, Pa., have acquired 500 acres of

(Continued on page 174)



## GARY WELDED GRATING

Send for attractive paper-weight sample, which is yours for the asking. Catalogues upon request.

Square edge bars for safe footing.

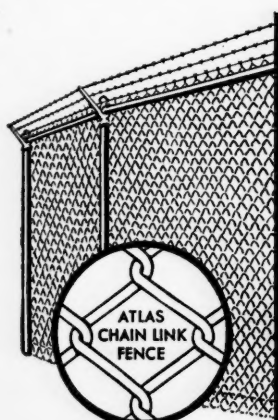
Hexagonal cross bars for neat appearance.

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Because of the way it is manufactured and installed... and because of the bethanized\* wire from which it is made... Atlas Chain Link Fence delivers years of added service. Electrolytic application bonds the heavy zinc coating into the steel and produces uniform covering of the wire. No thin spots for rust to start. Installed anywhere by our factory-trained crews.

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Wire Ends That Show  
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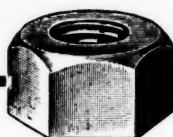
**Hexagon Head Cap Screws**

**Hexagon Semi-Finished Nuts**

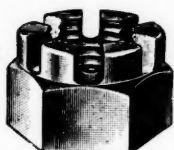
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Record**

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VERTISING AGENCIES AND  
PROSPECTIVE ADVERTISERS

—showing—

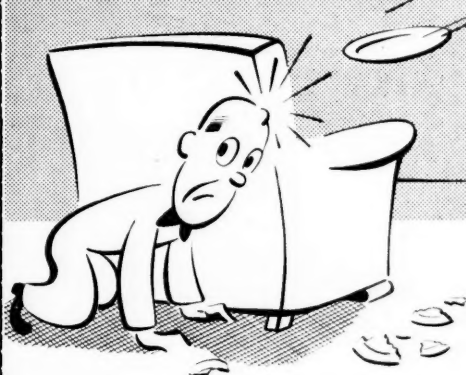
why this publication should be included in any  
campaign to cover the markets for machinery,  
goods, and services bought by Southern industry

**MANUFACTURERS RECORD**

Baltimore 3, Md.

*Wan-na*

**get Cooperation .**



Has it come to this? Then come to Mississippi! Friendly, native-born Americans, who believe that an honest day's pay deserves an honest day's work, are meeting industry more than half-way. To them, industrial employment is not just a job, it's a future. And under BAWI, they're investing their hard-earned money to build plants for you. In Mississippi, you'll get cooperation — from workers, community and lawmakers.

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(BAWI Means Balance Agriculture with Industry)



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—Mecca of skiing, fishing, canoeing, and hunting sportsmen, Trois Rivières is Canada's third oldest and third largest port is further distinguished industrially as being the world's biggest newsprint manufacturing center. Trois Rivières is showing solid and extraordinary growth. Seeking greater economy and better water, this fine Quebec city is turning to Layne Well Water Systems. Layne Water producing equipment is already serving military camps, airports, ammunition and aluminum foil plants—as well as the nearby city of Cap de la Madeleine.

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### HIGHEST EFFICIENCY

*Layne Vertical Turbine Pumps are available in sizes to produce from 40 to 16,000 gallons of water per minute. High efficiency saves on power cost.*

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## WELL WATER SYSTEMS VERTICAL TURBINE PUMPS

## LETTERS

(Continued from page 162)

vegetables, dairy products and many other products coming from our farms. When we come to the products of forests, we find that the uses of wood are manifold and enter into the manufacture of many consumer needs, including lumber for the building of houses and veneer for the making of furniture; also pulp and paper which comes from our forests is used for the manufacture of paper bags, wrapping paper and boxes, all made in the South. Rayon, which comes from southern pine, is manufactured in the South at such important centers as Richmond, Va., Nashville, Tenn., Waynesboro, Va., Asheville, N. C., Rome, Ga., to mention a few. This rayon is in turn woven into cloth in mills operating in the South.

"It would be interesting to have catalogued a list of the things shipped out of the South in the way of raw materials and, by the same token, have a list of raw materials and commodities which are shipped into the South for manufacture in this area. Personally, I believe this is a good thing and that it contributes toward the diversification of industry and to the broadening of commerce which makes trade profitable. Raw materials are important in the location of industries, but this is not the only determining factor in the location of industries by any manner of means."

Warren T. White, Director of Public Relations  
Seaboard Air Line Railroad Company  
Norfolk, Virginia.

To the Editor, *Manufacturers Record*:

"I think there should be a really accurate survey made by each State to determine the number of units of each finished product that is purchased or consumed in this section, and against these figures should be shown how much of each is actually produced by each State, or at least in the South, so that the difference between the amount of units bought or consumed, and produced, could be definitely ascertained. This would give a good line on what and how much could be made in the South.

"I know, for example, that in machinery lines almost every piece of equipment I have seen around here comes from the East or Middle West. With a definitely established market, and with iron and steel being available in Alabama and other surrounding states, there is no reason in the world why much of this machinery could not be made in the South.

"In this State there is a considerable amount of corn raised, but I find that large quantities are shipped in from the West. If we can raise corn at all, which we are doing here, I don't see why enough of it cannot be raised, at least to equal our consumption. This may be true in other States, also. In past years I learn, too, that a certain amount of cotton is imported into the South from Egypt."

Robert M. Nelson, President  
Port Wentworth Corporation  
Port Wentworth, Georgia.

## PROPER LEVEL FOR PEAK PRODUCTION

Kewaunee Automatic Adjustable Chairs and Stools give your workers fatigue-reducing comfort, and insure correct body alignment. Instantly adjustable to proper working height—no fussing with screws, bolts or tools. Simply lift seat to right height. Kewaunee Chairs and Stools fit any man or woman, tall or short, light or heavy, and are "Ton-Tested" for strength. Adjustable foot rest if desired.



**Kewaunee**

### AUTOMATIC ADJUSTABLE CHAIRS and STOOLS

4 HEIGHT RANGES—12-15", 15-21", 18-27", 24-36"

Why not keep your personnel at the proper level for peak production? We'll send you a Kewaunee Chair or Stool on a 30-day trial at no cost or obligation. Write for circular and full details.

C. G. Campbell, President

**KEWAUNEE MFG. CO., ADRIAN, MICH.**

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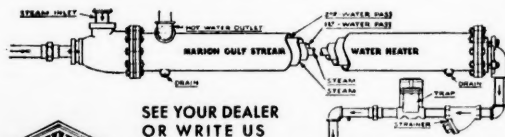
### MARION Gulf Stream Hot Water Heater

Utilize low pressure or live steam to assure abundant hot water. GULF STREAM heats swiftly through four concentric tubes, including outer shell, providing intimate steam and water contact.

● Steam fills central tube and annular space between two middle tubes. Water enters through pipe at extreme left, fills annular space between central tube and one surrounding it and between shell and next inner tube. Slidable packing glands at shell ends provide for expansion and contraction, prevent strains and leaks. Condensate moves to trap and returns to system, conserving all heat value. Here is **ECONOMY** and **DEPENDABILITY**.

Line ranges from 4" to 8" in diameter, 4' to 12' in length. Capacity ratings with steam at 25 lbs. are 370 to 4,335 GPH with temperature rise from 50° to 180° F. Installation requires little space. May be near floor line, ceiling or on wall. Standard design allows for 150 lbs. working pressure.

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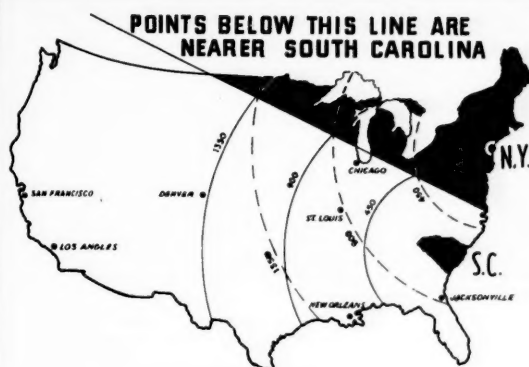


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Marion, Indiana, U. S. A.

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**COMPARISON** of Distances from Center of South Carolina and New York City to Other Points in the United States.

	Shortest		Rail	
	S. C.	N. Y.	S. C.	N. Y.
Chicago . . .	668	736	848	909
Los Angeles . .	2166	2517	2508	2963
Atlanta . . .	197	771	233	857
Austin, Texas . .	1044	1567	1183	1731
St. Louis . . .	617	907	821	1059
Louisville . . .	402	668	557	828
Kansas City . .	856	1122	1094	1280
Des Moines . .	891	1045	1126	1209

### SOUTH AMERICAN PORTS (Nautical Miles)

To	From S. C.	From N. Y.
Havana . . . . .	646	1186
Rio de Janeiro . . . .	4721	4770
Buenos Aires . . . . .	5822	5871
Caldera, Chile . . . .	3909	4320
San Juan . . . . .	1138	1399
Valparaiso . . . . .	4223	4634

The fact that South Carolina, with its deep-water ports and excellent transportation facilities, is closer to 61.3% of the nation's population than the Northeast is just one of the many advantages offered business and industry. For complete and specific information on South Carolina's industrial assets, write to the Research, Planning and Development Board, Dept. E, Columbia, S. C.

*South Carolina*

WHERE RESOURCES AND MARKETS MEET

## Southern Expansions

(Continued from page 170)

land on Houston Ship Channel, for erection of plant for manufacture of chemical products.

**DEER PARK**—Chemical Plant—C. F. Braun & Co., Deer Park, has contract for glycerin plant, Deer Park, cost approximately \$7,000,000; part of a \$25,000,000 expansion program; Shell Oil & Refining Co., Shell Bldg., owners.

**FORT WORTH**—Garage, Etc.—J. D. Johnson constructing one-story brick and tile garage and warehouse, 2801 Riverside Drive, South, cost approximately \$25,000; concrete foundation and floors.

**GARLAND**—Bus Station—Ben Jackson Chevrolet Co., will construct with day labor, one-story brick bus station, cost \$22,000; concrete foundation; tile and cement floors.

**GARWOOD**—Dryer—William K. Lehrer will erect reinforced concrete frame on con-

crete foundation building to be used as a rice dryer; cost \$150,000.

**GROESBECK**—Plant—Limestone Refrigeration Co-operative, Inc., has REA allocation of \$17,000 for completion of locker plant; Tex. 140 Groesbeck.

**HOUSTON**—Warehouse—H. E. Bowman, 2102 Leeland Ave., has plans in progress for construction of an 80 x 110 warehouse and shop, Rannels Street at Sampsons, cost \$25,000; steel frame construction; concrete foundation.

**HOUSTON**—Plant—National Steel Products Co., N. A. Fitch, President, has plans in progress for construction of manufacturing plant, warehouse and offices, Lockwood Drive at Armour Drive, cost approximately \$1,000,000.

**HOUSTON**—Addition—Fehr Baking Co., 4105 Leeland Ave., has plans in progress for construction of 2-story addition to bakery, cost \$225,000; 50x158; brick, stucco and reinforced concrete construction; built-up roof.

**HOUSTON**—Refinery Plant—Eastern States Petroleum Co., plans refinery plant, between Manchester Blvd. and Ship Channel.

**HOUSTON**—Plant—Dye Welding Supply Co., 4515 Fannin incorporated with Gil V. Dye, President and capital stock of \$80,000.

**HOUSTON**—Paper Plant—Magnolia Paper Co., Ralph Schnitzer, Sr., Executive Vice-President and General Manager, Hogan and Crockett, plans expenditure of \$375,000 for a newly equipped box paper plant; new plant, to be located at Clinton Drive and Lathrop.

**HOUSTON**—Warehouse—Crane Company, 22-5 McKinney Ave., let contract to Linbeck & Dederick Construction Co., 1532 Peden St., for warehouse and office building of brick and hollow tile construction, at Jefferson, Pease, Hutchins & Bustrop Sts., cost \$225,000.

**HOUSTON**—Expansion—Taub Packing Co., have started work on \$145,000 expansion program; present construction includes a complete rendering plant; model slaughter house; bank of frozen food lockers, and other improvements, cost approximately \$75,000; plant located Post Oak Road at Katy Road.

**HOUSTON**—Offices, Etc.—Westinghouse Electric Co., has plans in progress for construction of offices, shop building and warehouse, 5900 Clinton Drive; brick, concrete and plaster construction.

**HOUSTON**—Enlargement—Gulf Portland Cement Co., P. O. Box 3046, let contract to Stearnes-Rogers Manufacturing Co. of Denver and Houston, for enlargement of plant facilities.

**HOUSTON**—Factory—Earl McMillian Co., Earl McMillian, President, plans construction of a factory for rebuilding of Ford motor vehicle engines and other auto parts at Hempstead Road and Eleventh Ave., cost approximately \$300,000.

**HOUSTON**—Plant—Independent Oxygen Co., incorporated with Gil V. Dye, President, and capital stock of \$75,000; new plant, 6201 Industrial Way.

**HOUSTON**—Warehouse—Houston Belting & Supply Co., John Long, Manager, let contract to J. W. Landers, 1111 Elberta St., for construction of one-story warehouse, Walker Avenue at Chenevert Street; steel columns.

**HOUSTON**—Plant—Swift & Co., Ice Cream Division, E. H. Cutler, Plant Manager, has plans in progress for construction of brick and hollow tile ice cream plant, Kirby Drive at Milford Street, cost approximately \$500,000.

**HOUSTON**—Office, Etc.—Equipment, Inc., A. D. Bedford, 1922 Edmundson Street, has plans in progress for construction of one-story steel frame office and shop building, Edmundson Street at Calhoun; concrete foundation; built-up roof.

**HOUSTON**—Plant—Shell Oil Co., Inc., will begin construction of \$10,000,000 lubricating oil manufacturing plant adjacent to company's refinery on Houston ship canal; will include five separate plants, embodying improvements developed to meet war-time needs or resulting from war-time research.

**JACKSONVILLE**—Plant—D. B. Bruno Co., plans construction and operation of a 100,000-bushel curing and storage and dehydrating plant for handling of sweet potato.

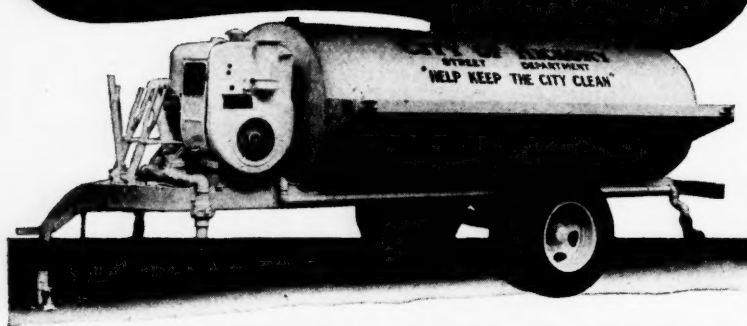
**LUBBOCK**—Telephone Building—B M F P Construction Co., has contract for brick and reinforced concrete addition on Northeast corner of present building, two stories and basement; Southwestern Bell Telephone Co., Dallas, owners.

**McALEN**—Building—Boggs Motor Sales, let contract to Mitchell Darby Construction Co., Pharr, for general construction and alterations to sales building.

**MARSHALL**—Addition—Fig-O Baking Co., Marshall, has plans in progress for construction of addition to bakery building, cost approximately \$50,000; built-up roof; concrete

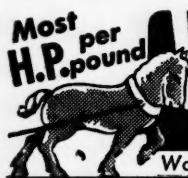
(Continued on page 176)

## A CLEAN ENGINE For a Clean Job!



The Model VE4 Wisconsin Air-Cooled Power Unit which supplies dependable power for the "City of Hickory" street flusher, made by Gunnison Manufacturing Co., of Baraboo, Wis., conforms in every detail to the clean-cut, streamlined beauty of the equipment of which it is an integral part. Delivering 20 hp. at 2200 R.P.M., this Wisconsin Engine provides

steady-going, heavy-duty serviceability and ample power for the job... and it fits the equipment with "tailor-made" nicety. If YOU have a problem in connection with your equipment, calling for self-contained engine power within a 2 to 30 hp. range, you may find a ready solution in the Wisconsin Air-Cooled Engine line. Detailed data on request.



# WISCONSIN MOTOR

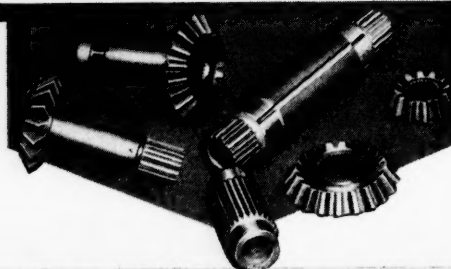
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**GEARS:** of ALL TYPES and COMBINATIONS and GEAR TOOTH SPECIALITIES from any metals to close tolerances can be produced to specifications of interchangeability

Simplicity of design, coupled with quality materials and engineering skill produce GEARS and SPROCKETS of accurate machining and rugged durability.



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Our engineers will be glad to know of your special requirements and will submit reliable recommendations designed to increase plant efficiency at worthwhile savings. Let us hear from you.

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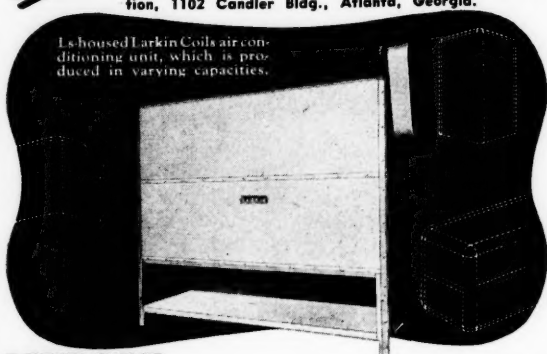
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TEMPERATURE ✱ PRESSURE ✱ LIQUID LEVEL ✱ ETC.



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JANUARY NINETEEN FORTY-SEVEN

**Serving the South's  
Fast Growing Needs . . .**

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To fulfill the vastly increased demands of southern industry, Lebanon Steel Foundry has recently opened this strategically located sales engineering office.

Lebanon has pioneered in the development of corrosion resistant and high strength alloy and steel castings. The excellent characteristics of these castings are the result of far-sighted research, exacting standards and meticulous workmanship in Lebanon's thoroughly modern foundry.

Contact the Atlanta office and arrange for a study of your particular casting requirements.

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**LEBANON**  
ALLOY AND STEEL

**Castings**



## STONEWALL BOARD

for Industrial Construction and Production



- ✓ Fireproof
- ✓ Rotproof
- ✓ Weatherproof
- ✓ Vermin-proof
- ✓ Needs No Painting

If a structure or product must resist fire, rust, rot or corrosion, Stonewall board is the answer. Made of imperishable asbestos-cement, this versatile building material has an almost unlimited number of uses—indoors or out!

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## Southern Expansions

(Continued from page 174)

foundation.

**MINERAL WELLS**—Plant—Cannelton Sewer Pipe Co., Edward F. Clements, President, Cannelton, Ind., has CPA approval for erection of Texas Vitriified Pipe Co., plant, cost approximately \$500,000; consists of a large periodic kilns and one large continuous kiln on 63-acre site just outside city limits.

**ODESSA**—Oil—Brown Well Service of West Texas, C. C. Brown, Houston, Pres., incorporated with C. L. Bass, \$125,000.

**ORANGE**—Plant—Thomas Bryan & Associates, has CPA approval for construction of one-story frozen food locker, cost approximately \$82,000; reinforced concrete foundation; concrete block walls; cork insulation.

**ORANGE**—Addition—E. I. duPont de Nemours & Co., Wilmington, Del., have CPA approval for additions to present nylon salt plant; includes Building No. 1, 60 x 556 x 90; No. 2, 70 x 60 x 36; No. 3, 180 x 155, 3-story; No. 4, 85 x 41 x 17, 6-story; No. 5, 50 x 60, 2-story; also 3-story masonry power house, pump house and additions, cost approximately \$5,505,000.

**PASADENA**—Addition—Champion Paper and Fibre Co., Charles W. Dabney, Jr., Assistant Secretary, Houston Division, having addition to present mill constructed by Ebasco Services, Inc.

**PORT ARTHUR**—Boiler Shop—Bids opened for boiler shop, and tin shop, Gulf Oil Refining Corp., owners.

**PORT ARTHUR**—Building—P. H. Inman, has CPA approval for construction of brick, concrete and reinforced concrete sales and service building, 2900 18th Street, cost approximately \$80,000.

**SAN ANTONIO**—Loading Platform—Richter's Bakery, 2201 Broadway, let contract to Gilbert Falbo, 107 Morales Street, for construction of a loading platform with shed, 2201 Broadway.

**SAN ANTONIO**—Warehouse—W. E. Huffaker, 447 Soledad Street, let contract to Thrallkill & Jackson, 601 American Hospital & Life Building, for two-story warehouse, Soledad and Convent Streets.

**SHERIDAN**—Pump House—J. F. Walker, Sheridan, has contract for one story, brick, hollow tile pump house, built-up roof, reinforced concrete on concrete slab foundation and floors.

**TEXAS CITY**—Plant—Monsanto Chemical Co., has completed negotiations for styrene plant from War Assets Administration, Houston; consists of 30 acres; Company has announced a \$14,500,000 expansion program for its various plants, a large portion of which will be used for additional polystyrene production facilities adjoining the Texas City plant; this is a thermoplastic molding compound used in home refrigerators, cosmetic

containers, etc.; plastic is marked under the trade name of Lustron.

**TEXARKANA**—Telephone Building—Hardy Construction Co., 202 Texas City Hall, has contract at approximately \$215,000 for two story telephone building, 5th and Olive Sts.; reinforced concrete frame, face brick, built-up roof, plaster, terrazzo and asphalt tile floors, reinforced concrete foundation and frame; Two States Telephone Co., A. C. Stuart, 800 Texarkana National Bank Bldg., owners.

**WACO**—Alterations—Phil Smith, 417 Webster St., has final plans in progress for alterations to manufacturing plant; one-story and mezzanine; brick construction; built-up roof; elevator; plumbing; ventilating fan; automatic sprinkler, etc.

**WICHITA FALLS**—Building—W. B. Wigginton, 7th Street at Scott, has plans in progress for construction of concrete block storage and transfer building, 101-15 Dallas Street; sheet metal roof; concrete floors.

**WICHITA FALLS**—Building—Panhandle Steel Co., has contract for furnishing steel for construction of feed mill building, 6th at Leo Street for Nutrena Mills Co., R. E. Grenlee, Manager, 44 Ewing St., Kansas City 18, Kansas; J. L. Hair Construction Co., City National Bank Building, Wichita Falls, general contractor, cost \$45,000.

**WICHITA FALLS**—Warehouse, Etc.—Central Freight Lines, 303 S. 12th Street, Waco, let contract to Taylor & Howie, 2204 9th Street, for construction of warehouse and freight terminal, Oak Street at Mississippi Street.

## VIRGINIA

**BRISTOL**—Building—Monroe Calculating Machine Co., let contract to Alley Construction Co., Bristol, Tenn. for building.

**FREDERICKSBURG**—Pump House—American Viscose Corp., Sylvania Division, E. W. Cornwell, Chief Engineer, let contract to Hughes-Foulkrod Co., 809 Schaff Building, Philadelphia, Pa., for new reinforced pump house.

**PULASKI**—Plant—Mohawk Carpet Mills, Inc., H. L. Shuttleworth, President, Amsterdam, N. Y., submitted high bid on New River ordinance plant; portion comprises the administration area, staff residences and the bag-making plant.

**RICHMOND**—Additions, Etc.—Charles Schwarzhild, Inc., received bids for additions and alterations, 316 E. Grace St.

**RICHMOND**—Office Building—J. Kennon Perrin Co., 5th & Canal Sts., Richmond 19, received bids for office building for Standard Oil Co., West Broad St.

**RICHMOND**—Hut—American Machine Division has CPA approval for Quonset hut for manufacturing of tobacco machinery, cost \$45,000.

**SUFFOLK**—Building—Virginia Engineering Co., Newport News, has contract for dial

building, for the Chesapeake and Potomac Telephone Co. of Virginia, 703 East Grace St., Richmond 19; two stories and basement, 72 ft. by 95 ft.; fire resistive with steel frame, concrete floor slabs, air-conditioned throughout.

**WARRENTON**—Alterations—T. K. Grayson, let contract to C. E. Nuckols, 1103 E. Main Street, Richmond 19, for alterations.

**WAYNESBORO**—Building—E. I. duPont de Nemours & Co., Wilmington, Del., received bids for research and office building.

## WEST VIRGINIA

**WHEELING**—Addition—J. F. Stifel & Sons, let contract to Engstrom & Wynn for addition to present plant, 4th and Main Streets, cost \$270,000; plans call for a three-story building of masonry construction.

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